MATHEMATICS
PRIMARY FOUR
SECOND TERM

محمود محب



Theme (3) | Fractions, Decimals, and Prproportional Relationships

Unit (9) | Fractions

Concept (1) | Composing and Decomposing Fractions

Concept (2) | Comparing Fractions

Concept (3) | Multiplication and Fractions

Unit (10) | Decimals

Concept (1) | Understanding Decimals

Concept (2) | Decimals and Fractions

Concept (3) | Operations on Decimals

Unit (11) | Data with Fractions

Concept (1) | Creating and Analyzing Graphs

Theme (4) | Applications of Geometry and Measurement

Unit (12) | Geometry

Concept (1) | Geometric Concepts

Concept (2) | Classifying Shapes

Unit (13) | Angles of a Circle

Concept (1) | Breaking the Circle into Angles

Concept (2) | Measuring and Drawing Angles





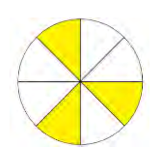

UNIT
9

Theme 3 | Fractions, Decimals, and Proportional Relationships

Unit 9
Fractions

Concept (1)
Composing and Decomposing Fractions

Lesson (1) Unit Fractions



$\frac{3}{8}$ ☜ Numerator (number of shaded parts)
☜ Denominator (number of all parts)



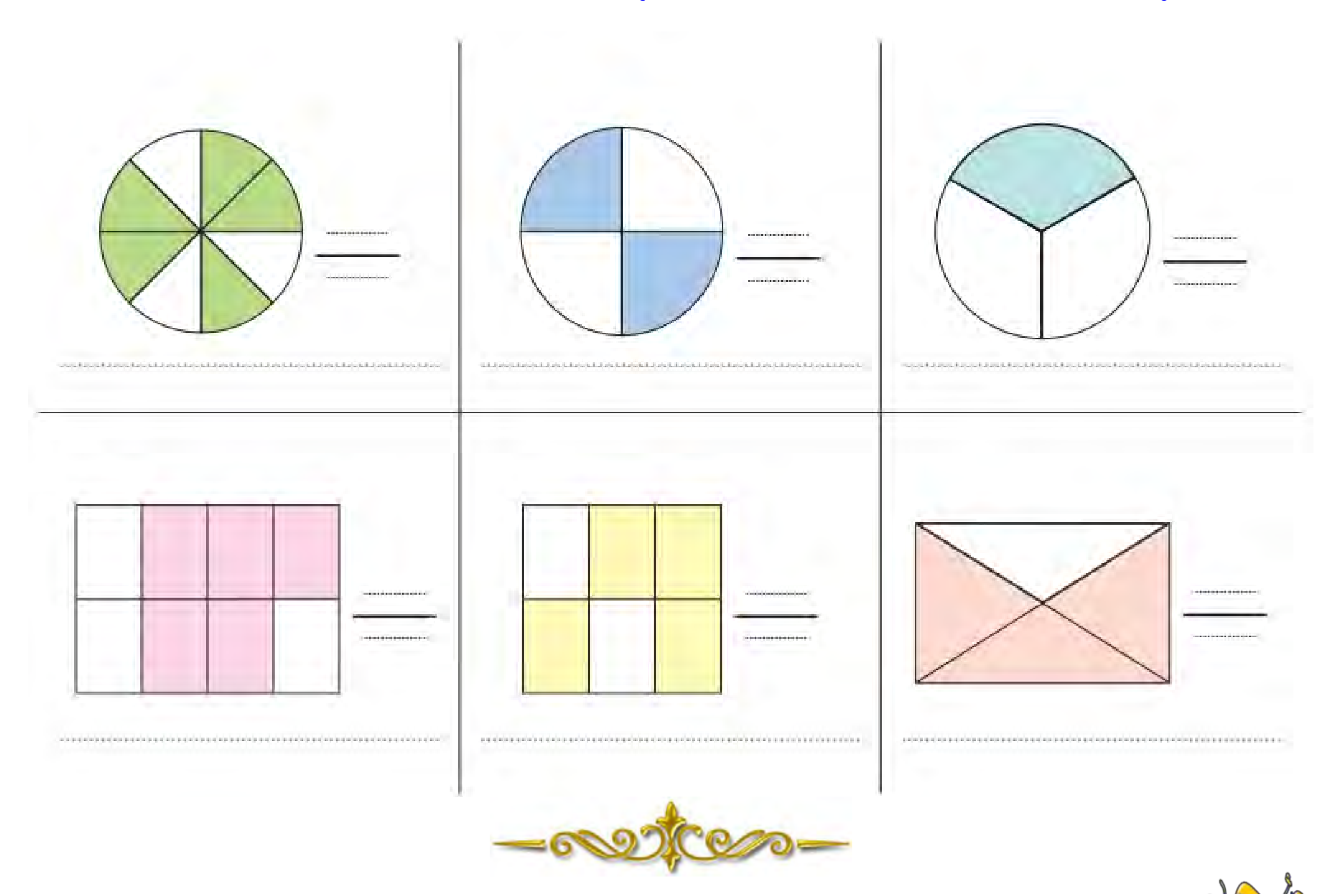
The figure	All parts	Shaded parts	Fraction form	Word form
	2	1	$\frac{1}{2}$	One half
	3	1	$\frac{1}{3}$	One third
	4	1	$\frac{1}{4}$	One fourth
	5	1	$\frac{1}{5}$	One fifth
	6	1	$\frac{1}{6}$	One sixth
	7	1	$\frac{1}{7}$	One seventh
	8	1	$\frac{1}{8}$	One eighth
	9	1	$\frac{1}{9}$	One ninth
	10	1	$\frac{1}{10}$	One tenth

Complete the following table:

	Numerator	Denominator	The Fraction	Word form
1	1	2	$\frac{\dots\dots}{\dots\dots}$	....
2	2	....	$\frac{\dots\dots}{7}$	....
3	....	3	$\frac{2}{\dots\dots}$	....
4	....	....	$\frac{5}{8}$	....
5	....	....	$\frac{\dots\dots}{\dots\dots}$	Seven ninths



Write the fraction that represents the shaded part:



Complete:

$\frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \frac{\dots}{\dots}$

$\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} = \frac{\dots}{\dots}$

$\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} = \frac{\dots}{\dots}$

$\frac{1}{4} + \frac{1}{4} = \frac{\dots}{\dots}$



Lesson (2) Decomposing Fractions

$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$
$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$

$\frac{5}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$



$\frac{5}{6}$

$\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$

$\frac{2}{6} + \frac{3}{6}$

$\frac{2}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$

$\frac{2}{6} + \frac{2}{6} + \frac{1}{6}$

$\frac{3}{6} + \frac{1}{6} + \frac{1}{6}$

$\frac{1}{6} + \frac{4}{6}$



Decompose the following fractions:

$\frac{4}{5}$ = ... + ... + ... + ...

$\frac{3}{8}$ = ...

$\frac{2}{6}$ = ...



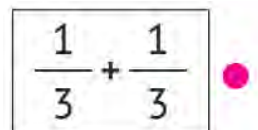
Lesson (3) — More of Decomposing Fractions

Decompose the following fractions in two different ways:

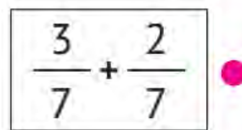
1. $\frac{3}{4} = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$ 2. $\frac{3}{4} = \frac{\dots}{\dots} + \frac{\dots}{\dots}$

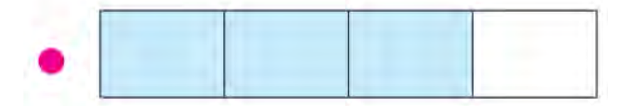
1. $\frac{4}{5} = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$ 2. $\frac{4}{5} = \frac{\dots}{\dots} + \frac{\dots}{\dots}$

Match:









$\frac{1}{4} + \frac{2}{4}$





Lesson (4) — Fractions and Mixed Numbers

Proper fraction:

Is just a fraction where its numerator is <u>less than</u> its denominator, such as: $\frac{1}{5}, \frac{2}{3}, \frac{5}{7}, \frac{10}{21}, \ldots$ *etc.*

Improper fraction:

Is just a fraction where its numerator is <u>more than</u> or <u>equal to</u> its denominator, such as: $\frac{7}{5}, \frac{5}{3}, \frac{7}{7}, \frac{11}{2}, \ldots$ *etc.*

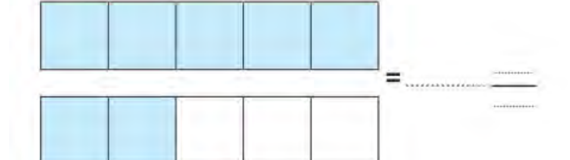
Mixed number:

Is a number consisting of a whole number and a proper fraction, such as: $3\frac{1}{5}, 4\frac{2}{3}, 2\frac{5}{7}, 6\frac{11}{12}, \ldots$ *etc.*

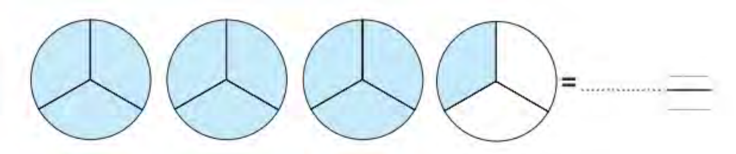
Write the mixed number that represents the figure:

= .... $\frac{\ldots}{\ldots}$

= .... $\frac{\ldots}{\ldots}$



= .... $\frac{\ldots}{\ldots}$



= .... $\frac{\ldots}{\ldots}$



Match:

$\frac{5}{5}$ •	• proper fraction •	• $\frac{9}{7}$
$3\frac{5}{8}$ •	• improper fraction •	• $\frac{3}{13}$
$\frac{5}{7}$ •	• mixed number •	• $2\frac{5}{7}$

The fractional form of the whole number:

$\frac{10}{2} = 5 \rightarrow 10 \div 2 = 5$

$\frac{14}{7} = 2 \rightarrow 14 \div 7 = 2$

$\frac{18}{6} = 3 \rightarrow 18 \div 6 = 3$

Complete:

1. $2 = \frac{....}{5} = \frac{4}{....} = \frac{....}{....}$
2. $4 = \frac{....}{2} = \frac{20}{....} = \frac{....}{....}$
3. $8 = \frac{....}{2} = \frac{40}{....} = \frac{....}{....}$
4. $1 = \frac{....}{5} = \frac{4}{....} = \frac{....}{....}$
5. $5 = \frac{....}{5} = \frac{15}{....} = \frac{....}{....}$
6. $9 = \frac{....}{3} = \frac{36}{....} = \frac{....}{....}$
7. $3 = \frac{....}{5} = \frac{12}{....} = \frac{....}{....}$
8. $6 = \frac{....}{3} = \frac{24}{....} = \frac{....}{....}$
9. $7 = \frac{....}{5} = \frac{21}{....} = \frac{....}{....}$

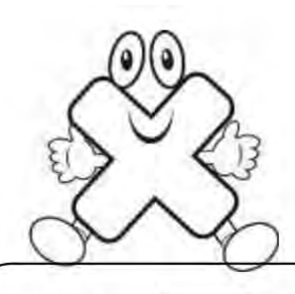
Write each of the following as an improper fraction:

1. $3\frac{1}{2} = \frac{....}{....}$
2. $5\frac{1}{2} = \frac{....}{....}$
3. $5\frac{1}{4} = \frac{....}{....}$
4. $3\frac{2}{3} = \frac{....}{....}$
5. $2\frac{3}{5} = \frac{....}{....}$
6. $6\frac{2}{3} = \frac{....}{....}$
7. $2\frac{3}{4} = \frac{....}{....}$
8. $8\frac{1}{2} = \frac{....}{....}$
9. $4\frac{3}{10} = \frac{....}{....}$

Write each of the following as a mixed number:

1. $\frac{5}{2} = ... \frac{....}{....}$
2. $\frac{9}{2} = ... \frac{....}{....}$
3. $\frac{15}{4} = ... \frac{....}{....}$
4. $\frac{7}{3} = ... \frac{....}{....}$
5. $\frac{13}{5} = ... \frac{....}{....}$
6. $\frac{22}{3} = ... \frac{....}{....}$
7. $\frac{9}{4} = ... \frac{....}{....}$
8. $\frac{17}{2} = ... \frac{....}{....}$
9. $\frac{31}{10} = ... \frac{....}{....}$

Homework

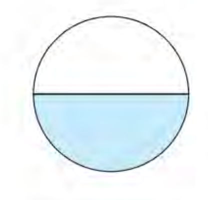


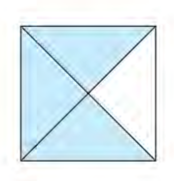
MULTIPLICATION

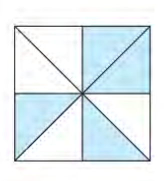
4 × 7 =	4 × 3 =	4 × 4 =
4 × 8 =	4 × 2 =	4 × 1 =
4 × 5 =	4 × 6 =	4 × 0 =

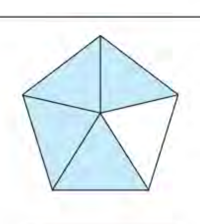
5 × 3 =	5 × 5 =	5 × 4 =
5 × 6 =	5 × 0 =	5 × 7 =
5 × 2 =	5 × 1 =	5 × 9 =

Write the fraction that represents the shaded part:







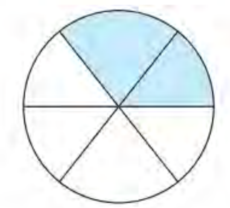


Write the fraction, and then decompose it:

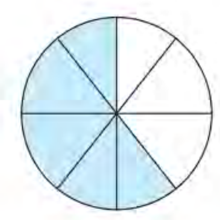


$\frac{\dots\dots}{\dots\dots}$ = ... + ... + ...

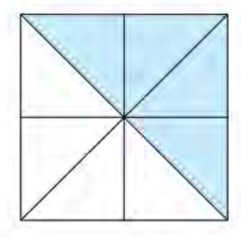
$\frac{\dots\dots}{\dots\dots}$ = ... + ... + ... + ...



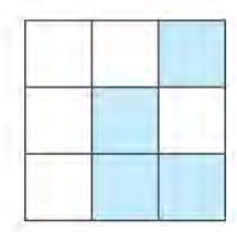
$\frac{\dots\dots}{\dots\dots}$ = ... + ...



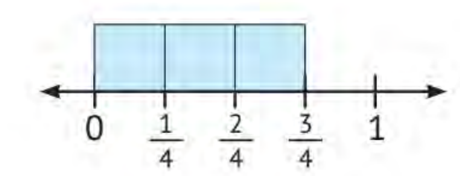
$\frac{\dots\dots}{\dots\dots}$ = ... + ... + ... + ... + ...



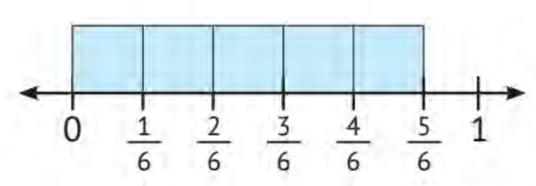
$\frac{\dots\dots}{\dots\dots}$ = ... + ... + ... + ...



$\frac{\dots\dots}{\dots\dots}$ = ... + ... + ... + ...



$\frac{\dots\dots}{\dots\dots}$ = ... + ... + ...



$\frac{\dots\dots}{\dots\dots}$ = ... + ... + ... + ... + ...



Decompose the following fractions:

$\frac{5}{6}$ = ...

$\frac{4}{7}$ = ...

$1 = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$

$1 = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$

$1 = \frac{\dots}{\dots} + \frac{\dots}{\dots}$

Decompose the following fractions in two different ways:

1 $\frac{5}{7} = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$

2 $\frac{5}{7} = \frac{\dots}{\dots} + \frac{\dots}{\dots}$

1 $\frac{5}{8} = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$

2 $\frac{5}{8} = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$

1 $\frac{6}{9} = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$

2 $\frac{6}{9} = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$







Lesson (5) Adding and Subtracting Fractions

Solve each of the following.

a. $1 + \frac{3}{5} + \frac{1}{5} + 2$

b. $2 + 1 + \frac{5}{6} + \frac{2}{6}$

c. $1 - \frac{2}{5}$

d. $2 - \frac{2}{9}$

Lesson (6) Adding Mixed Numbers with Like Denominators

Add:

a. $2\frac{3}{8} + 2\frac{2}{8}$

b. $1\frac{4}{5} + \frac{1}{5}$

c. $4\frac{3}{6} + 2\frac{4}{6}$

d. $3\frac{3}{5} + 2\frac{1}{5}$

e. $6 + 3\frac{3}{4}$

f. $5\frac{1}{3} + 2\frac{2}{3}$

Lesson (7) Subtracting Mixed Numbers with Like Denominators

Subtract:

a. $7\frac{7}{9} - 4\frac{4}{9} =$ ....

b. $3\frac{2}{5} - 2\frac{1}{5} =$ ....

c. $1 - \frac{2}{3} =$ ....

d. $3 - \frac{1}{10} =$ ....

e. $5 - 2\frac{1}{3} =$ ....

f. $1 - \frac{1}{7} - \frac{2}{7} =$ ....



Homework



MULTIPLICATION

5 × 7 = ☐	5 × 3 = ☐	5 × 4 = ☐
5 × 8 = ☐	5 × 2 = ☐	5 × 1 = ☐
5 × 5 = ☐	5 × 6 = ☐	5 × 0 = ☐

6 × 3 = ☐	6 × 5 = ☐	6 × 4 = ☐
6 × 6 = ☐	6 × 0 = ☐	6 × 7 = ☐
6 × 2 = ☐	6 × 1 = ☐	6 × 9 = ☐



Solve the following problems:

a. $2\frac{4}{9}+1\frac{2}{9}$

b. $2\frac{3}{5}+1\frac{4}{5}$

c. $3\frac{2}{5}+1\frac{1}{5}$

d. $1+1\frac{1}{6}$

e. $5\frac{5}{6}+2\frac{1}{6}$

f. $2\frac{1}{7}+3\frac{3}{7}$

g. $3\frac{2}{5}-2\frac{1}{5}$

h. $2\frac{6}{9}-1\frac{2}{9}$

i. $3\frac{4}{7}-1\frac{3}{7}$

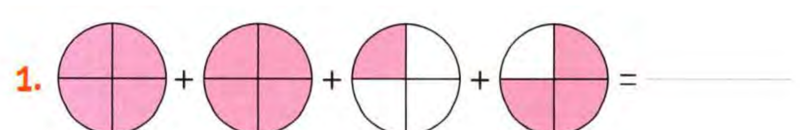
j. $3-2\frac{1}{8}$

k. $3\frac{2}{5}-1\frac{4}{5}$

l. $2+1\frac{1}{7}+3\frac{3}{7}$



Choose the correct answer:

1.  = ...

A. $2\frac{1}{4}$ B. $2\frac{1}{2}$ C. $2\frac{3}{4}$ D. 3

2. $\frac{5}{9}+\frac{4}{9}=$ ....

A. $\frac{1}{9}$ B. $\frac{9}{18}$ C. 1 D. $\frac{20}{81}$

3. $4+\frac{7}{11}+2+\frac{1}{11}=$ ....

A. $6\frac{8}{11}$ B. $6\frac{8}{22}$ C. $2\frac{6}{11}$ D. $7\frac{8}{11}$

4. $1\frac{1}{4}+\frac{3}{4}=$ ....

A. $2\frac{1}{4}$ B. 2 C. 4 D. $2\frac{3}{4}$

5. $\frac{1}{5}+\frac{3}{5}+\frac{\dots}{5}=1$

A. $\frac{1}{5}$ B. $\frac{2}{5}$ C. $\frac{3}{5}$ D. 1

6. $4+\frac{1}{3}=$ ....

A. $4\frac{1}{3}$ B. $\frac{4}{3}$ C. $\frac{12}{3}$ D. $5\frac{1}{3}$

7. $3+\frac{2}{5}+1+\frac{1}{5}=$ ....

A. $2\frac{3}{5}$ B. $4\frac{3}{5}$ C. $2\frac{1}{5}$ D. $\frac{7}{5}$

8. $\frac{6}{10}-\frac{2}{10}=$ ....

A. $\frac{8}{10}$ B. $\frac{4}{10}$ C. $\frac{4}{20}$ D. $\frac{8}{20}$

9. $3\frac{5}{8}-2\frac{1}{8}=$ ....

A. $2\frac{6}{8}$ B. $2\frac{4}{8}$ C. $1\frac{6}{8}$ D. $1\frac{4}{8}$

10. $1-\frac{3}{5}=$ ....

A. $\frac{2}{5}$ B. $\frac{3}{5}$ C. $\frac{2}{4}$ D. $\frac{2}{10}$

11. $2-\frac{5}{7}=$ ....

A. $1\frac{2}{7}$ B. 1 C. $\frac{10}{7}$ D. $1\frac{5}{7}$

12. $6-3\frac{1}{4}=$ ....

A. $3\frac{1}{4}$ B. $9\frac{1}{4}$ C. $2\frac{3}{4}$ D. $2\frac{1}{4}$

13. $\frac{1}{5}+\frac{2}{5}-\frac{2}{5}=$ ....

A. $\frac{2}{5}$ B. $\frac{1}{5}$ C. 1 D. $\frac{6}{5}$

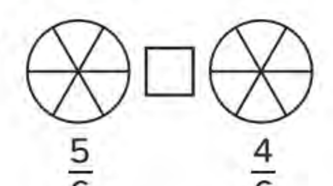


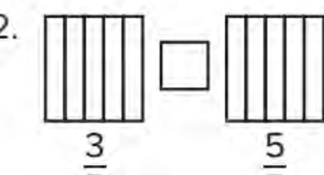
Concept (2): Comparing Fractions

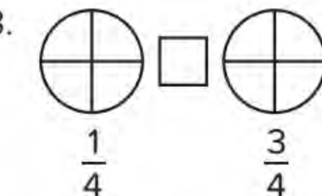
Lesson (8) | **Comparing Fractions**

[1] Comparing fractions with like denominators:

Comparing Fractions with Like Denominators Shade each shape to show the given fractions. Then, compare the fractions using the symbols <, >, or =.

1. 

2. 

3. 



4. Fill in the blanks to complete the statement.

If fractions have the same ______________________, then the one with the ______________________ numerator is the ______________________ fraction.

5. Order the following fractions from least to greatest.

$\frac{6}{8}$ $\frac{2}{8}$ $\frac{5}{8}$ $\frac{3}{8}$ $\frac{7}{8}$ $\frac{1}{8}$ $\frac{8}{8}$

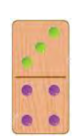
________ ; ________ ; ________ ; ________ ; ________ ; ________ ; ________



Put the suitable relation (<), (>) or (=) in the blanks:

1.  ☐ 

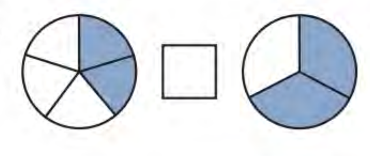
2.  ☐ 

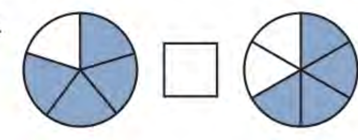
3.  ☐ 

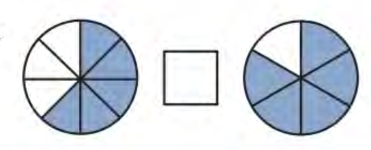
4.  ☐ 

[2] Comparing fractions with like numerators:

Comparing Fractions with Like Numerators Write the fractions shown underneath each shape, and then compare each pair of fractions using the symbols <, >, or =.

1. 

2. 

3. 



4. Fill in the blanks to complete the statement.

If fractions have the same ____________, then the one with the ____________ denominator is the ____________ fraction.



Write <, >, or = in each box to compare the two fractions.

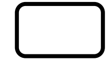
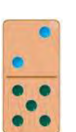
5. $\frac{5}{6}$ ☐ $\frac{5}{8}$ 6. $\frac{3}{6}$ ☐ $\frac{3}{4}$ 7. $\frac{4}{8}$ ☐ $\frac{4}{5}$

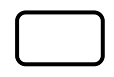
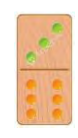


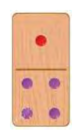
8. Order the following fractions from least to greatest.

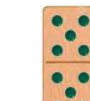
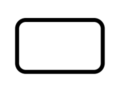
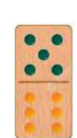
$\frac{3}{5}$ $\frac{3}{8}$ $\frac{3}{3}$ $\frac{3}{6}$ $\frac{3}{12}$ ______ , ______ , ______ , ______ , ______

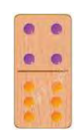
Put the suitable relation (<), (>) or (=) in the blanks:

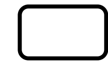
1.   

2.   

3.  

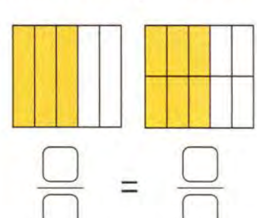
4.   

5.  

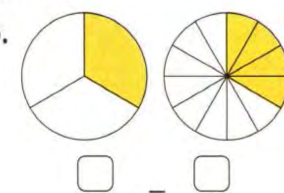
6.   

Lesson (9) Same Fraction, Different Ways

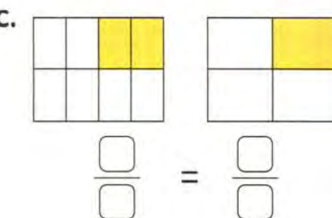
Write the equivalent fractions for each.

a. 

$\frac{\square}{\square} = \frac{\square}{\square}$

b. 

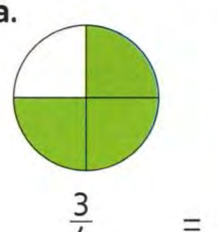
$\frac{\square}{\square} = \frac{\square}{\square}$

c. 

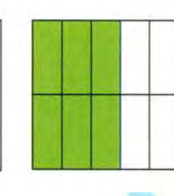
$\frac{\square}{\square} = \frac{\square}{\square}$



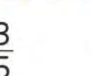
1. Use the models to write the equivalent fractions.

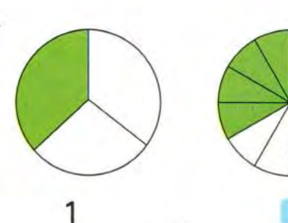
a.  

$\frac{3}{4} = \frac{6}{\square}$

b. 

$\frac{3}{5} = \frac{\square}{10}$



c. 

$\frac{1}{3} = \frac{\square}{12}$

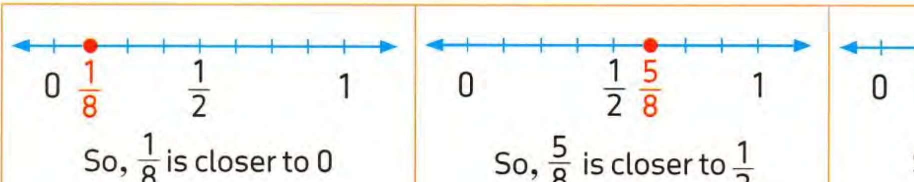


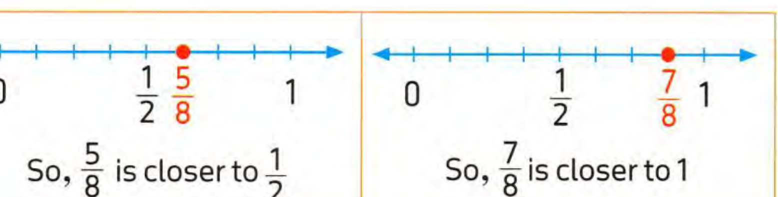
Lesson (10) Benchmark Fractions

Find benchmarks for $\frac{1}{8}$, $\frac{5}{8}$ and $\frac{7}{8}$

Locate each fraction on a number line. Decide if the fraction is closer to 0 , $\frac{1}{2}$ or 1

Solution 







Write whether the fraction is closer to 0 , $\frac{1}{2}$ or 1.

Use the number line.

a. $\frac{8}{10}$ b. $\frac{6}{10}$ c. $\frac{2}{10}$ d. $\frac{9}{10}$ e. $\frac{4}{10}$





Lesson (11) Applications: Comparing Fractions Using Benchmark Fractions

Use benchmark fractions to compare:

a. $\frac{3}{6}$ ☐ $\frac{4}{12}$

b. $\frac{4}{10}$ ☐ $\frac{5}{6}$

c. $\frac{11}{12}$ ☐ $\frac{4}{9}$

d. $\frac{7}{6}$ ☐ $\frac{5}{7}$

e. $\frac{6}{12}$ ☐ $\frac{4}{8}$

f. 1 ☐ $\frac{8}{5}$



Homework



MULTIPLICATION

7 × 3 = ☐	7 × 5 = ☐	7 × 4 = ☐
7 × 6 = ☐	7 × 0 = ☐	7 × 7 = ☐
7 × 2 = ☐	7 × 1 = ☐	7 × 9 = ☐

5 × 7 = ☐	5 × 3 = ☐	5 × 4 = ☐
5 × 8 = ☐	5 × 2 = ☐	5 × 1 = ☐
5 × 5 = ☐	5 × 6 = ☐	5 × 0 = ☐



[1] Put the suitable relation (<), (>) or (=) in the blanks:

(1) $\frac{1}{5}$ ☐ $\frac{4}{5}$

(2) $\frac{3}{4}$ ☐ $\frac{1}{4}$

(3) $2\frac{7}{9}$ ☐ $2\frac{5}{9}$

(4) $2\frac{1}{8}$ ☐ $\frac{17}{8}$



[2] Put the suitable relation (<), (>) or (=) in the blanks:

(1) $\frac{3}{4}$ ☐ $\frac{3}{5}$ (2) $\frac{1}{7}$ ☐ $\frac{1}{3}$

(3) $\frac{2}{8}$ ☐ $\frac{2}{4}$ (4) $\frac{8}{25}$ ☐ $\frac{8}{13}$

(5) $2\frac{7}{9}$ ☐ $2\frac{7}{8}$ (6) $2\frac{1}{2}$ ☐ $2\frac{1}{9}$



[3] Arrange each of the following numbers:

(1) $\frac{2}{11}, \frac{7}{11}, \frac{4}{11}, \frac{10}{11}$ Ascending order: ....

(2) $\frac{13}{7}, \frac{5}{7}, \frac{9}{7}, \frac{4}{7}, \frac{11}{7}$ Descending order: ....



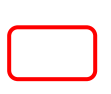
[4] Arrange each of the following numbers:

(1) $\frac{7}{13}, \frac{7}{5}, \frac{7}{9}, \frac{7}{4}, \frac{7}{11}$ Ascending order: ....

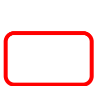
(2) $\frac{12}{5}, \frac{12}{7}, \frac{12}{17}, \frac{12}{13}, \frac{12}{15}$ Descending order: ....

[5] Put the suitable relation (<), (>) or (=) in the blanks:

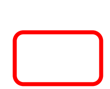
1. ☐

2.   

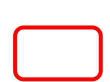
3.  ☐ 

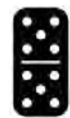
4.   

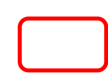
5.  ☐ 

6.   

7.  ☐

8.   

9.  ☐ 

10.   



Use benchmark fractions to compare. Write “< , > or =”.

a. $\frac{7}{18}$ ☐ $\frac{3}{4}$

b. $\frac{10}{20}$ ☐ $\frac{9}{16}$

c. $\frac{7}{12}$ ☐ $\frac{10}{10}$

d. $\frac{3}{7}$ ☐ $\frac{6}{5}$

e. 0 ☐ $\frac{2}{3}$

f. $\frac{10}{7}$ ☐ 1

Choose the correct answer:

1. The fraction $\frac{5}{8}$ is nearest to the benchmark fraction ______

A. $\frac{1}{2}$ B. $1\frac{1}{2}$

C. 1 D. 0

2. $\frac{7}{12}$ is closer to the benchmark fraction ______

A. 1 B. $\frac{1}{2}$

C. 0 D. $\frac{1}{4}$

3. $\frac{8}{9}$ is closer to the benchmark fraction ______

A. 2 B. 1

C. 0 D. $\frac{1}{2}$

4. $\frac{7}{12}$ ◯ $\frac{10}{10}$

A. > B. <

C. =

5. Which of the following fractions is equal to $\frac{1}{2}$?

A. $\frac{4}{7}$ B. $\frac{5}{10}$

C. $\frac{6}{3}$ D. $\frac{8}{8}$

6. Which of the following fractions is greater than $\frac{1}{2}$?

A. $\frac{2}{4}$ B. $\frac{2}{6}$

C. $\frac{5}{8}$ D. $\frac{10}{20}$



Concept (3)
Multiplication and Fractions

Lesson (12) Equivalent Fractions Using Identity Property

Identity Property Review Solve each problem. Then, circle the problems that show the Identity Property of Multiplication.

1. $45 \times 1 =$ ______________
2. $1 \times 34{,}953 =$ ______________
3. $\frac{2}{3} \times 1 =$ ______________
4. $0 \times 4 =$ ______________
5. $1 \times \frac{4}{5} =$ ______________
6. $\frac{1}{1} \times \frac{1}{8} =$ ______________
7. $\frac{3}{7} \times \frac{4}{4} =$ ______________
8. $\frac{5}{6} \times 0 =$ ______________





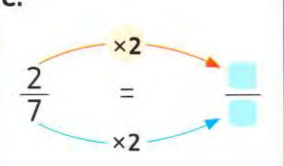
Lesson (13) Equivalent Fractions Using Multiplication and Division

Complete to find equivalent fractions.

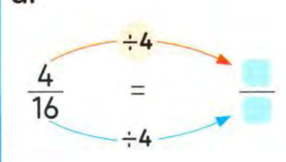
a. $\frac{1}{3} = \frac{\square}{\square}$ (×4 numerator, ×4 denominator)

b. $\frac{3}{6} = \frac{\square}{\square}$ (÷3 numerator, ÷3 denominator)

c.



d.







Lesson (14) Finding the Missing in Equivalent Fractions

Complete.

a. $\frac{2}{3} = \frac{\square}{9}$	b. $\frac{4}{6} = \frac{12}{\square}$	c. $\frac{3}{6} = \frac{\square}{2}$
d. $\frac{2}{7} = \frac{\square}{14}$	e. $\frac{8}{10} = \frac{4}{\square}$	f. $\frac{\square}{6} = \frac{10}{12}$



Generate 5 equivalent fractions for each fraction:

a. $\frac{2}{3}$; ______ ; ______ ; ______ ; ______ ; ______

b. ______ ; $\frac{2}{4}$; ______ ; ______ ; ______ ; ______

c. $\frac{3}{5}$; ______ ; ______ ; ______ ; ______ ; ______

d. ______ ; ______ ; $\frac{3}{9}$; ______ ; ______ ; ______



Find the value of X:

a. $\frac{9}{12} = \frac{X}{4}$ ______	b. $\frac{18}{27} = \frac{2}{X}$ ______	c. $\frac{X}{5} = \frac{15}{15}$ ______
d. $\frac{X}{4} = \frac{2}{8}$ ______	e. $\frac{10}{X} = \frac{2}{3}$ ______	f. $\frac{X}{42} = \frac{1}{7}$ ______



10. Nabil had 9 cookies. $\frac{2}{3}$ of them were chocolate chip. How many cookies were chocolate chip? (Hint: $\frac{2}{3} = \frac{?}{9}$)



Different Kinds of Cookies

Lesson (15) Multiplying by a Whole

		Model	Addition sentence	Multiplication sentence
a.	$\frac{3}{5}$		$\frac{3}{5} = \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$	$\frac{3}{5} = 3 \times \frac{1}{5}$
b.	$\frac{2}{7}$		$\frac{2}{7} = \frac{1}{7} + \frac{1}{7}$	$\frac{2}{7} = 2 \times \frac{1}{7}$
c.	$\frac{4}{6}$		$\frac{4}{6} = \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$	$\frac{4}{6} = 4 \times \frac{1}{6}$

Multiply:

a. $5 \times \frac{1}{7} =$ ....

b. $\frac{1}{3} \times 3 =$ ....

c. $10 \times \frac{1}{5} =$ ....

d. $\frac{3}{4} \times 2 =$ ....

e. $\frac{2}{9} \times 4 =$ ....

f. $3 \times \frac{3}{5} =$ ....



Homework

Complete:

a $\frac{1}{2} = \frac{5}{\dots}$

b $\frac{5}{15} = \frac{\dots}{3}$

c $\frac{3}{5} = \frac{9}{\dots}$

d $\frac{8}{9} = \frac{48}{\dots}$

e $\frac{16}{18} = \frac{\dots}{9}$

f $\frac{5}{7} = \frac{30}{\dots}$

g $\frac{\dots}{13} = \frac{4}{26}$

h $\frac{\dots}{9} = \frac{32}{72}$



Simplify:

a $\frac{5}{10} = \frac{\dots}{\dots}$

b $\frac{2}{6} = \frac{\dots}{\dots}$

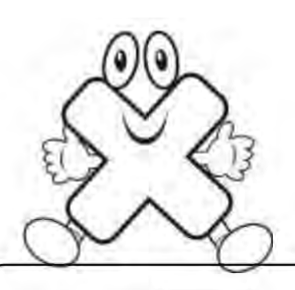
c $\frac{6}{12} = \frac{\dots}{\dots}$

d $\frac{6}{9} = \frac{\dots}{\dots}$

e $\frac{5}{20} = \frac{\dots}{\dots}$

f $\frac{6}{21} = \frac{\dots}{\dots}$





MULTIPLICATION

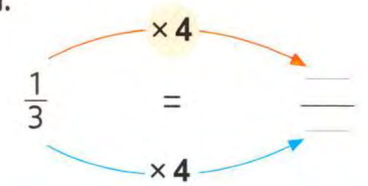
6 × 7 = ☐	6 × 3 = ☐	6 × 4 = ☐
6 × 8 = ☐	6 × 2 = ☐	6 × 1 = ☐
6 × 5 = ☐	6 × 6 = ☐	6 × 0 = ☐

7 × 4 = ☐	7 × 3 = ☐	7 × 5 = ☐
7 × 7 = ☐	7 × 6 = ☐	7 × 0 = ☐
7 × 9 = ☐	7 × 2 = ☐	7 × 1 = ☐



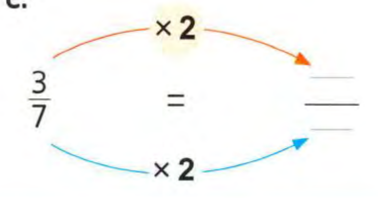
Complete to get equivalent fractions:

a.



b. $\frac{2}{5}$ = $\frac{__}{__}$ (× 5 top, × 5 bottom)

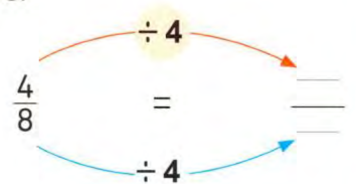
c.



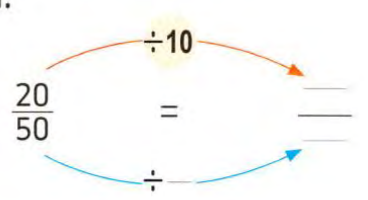
d.



e.



f.



Multiply:

a. $\frac{1}{8} \times 7 =$ ....

b. $7 \times \frac{1}{9} =$ ....

c. $4 \times \frac{1}{9} =$ ....

d. $8 \times \frac{1}{9} =$ ....





Unit (9) Assessment

[1] Choose the correct answer:

1. $\frac{3}{8}$ = ...
   A. $\frac{1}{4}+\frac{1}{4}+\frac{1}{4}$ B. $\frac{1}{8}+\frac{1}{8}+\frac{1}{8}$ C. $\frac{2}{8}+1$ D. $\frac{1}{8}+2$

2. $\frac{14}{3}$ = ... as a mixed number.
   A. $4\frac{1}{3}$ B. $3\frac{2}{4}$ C. $4\frac{2}{3}$ D. $2\frac{2}{3}$

3. $\frac{3}{8}$ > ....
   A. $\frac{3}{4}$ B. $\frac{5}{8}$ C. $1\frac{1}{8}$ D. $\frac{1}{8}$

4. Which of the following is the least ?
   A. $\frac{4}{9}$ B. $\frac{7}{9}$ C. $\frac{2}{9}$ D. 1

5. $2\frac{3}{7}$ = ... "as an improper fraction."
   A. $\frac{17}{3}$ B. $\frac{17}{7}$ C. $\frac{14}{7}$ D. $\frac{11}{7}$

6. $\frac{1}{5}+\frac{1}{5}+\frac{1}{5}$ = ...
   A. $\frac{4}{5}$ B. $\frac{111}{5}$ C. $3\times\frac{1}{5}$ D. $\frac{3}{15}$

7. $\frac{7}{8}$ = ...
   A. $\frac{21}{11}$ B. $\frac{14}{16}$ C. $1\frac{7}{4}$ D. $\frac{14}{24}$

[2] Complete:

1. $7\frac{3}{9}$ − .... $= 4\frac{1}{9}$

2. $\frac{5}{8} = \frac{\ldots}{40}$

3. .... $-2\frac{1}{5} = 3\frac{3}{5}$

4. $5\frac{1}{6}+1\frac{4}{6}$ = ...

5. $2+\frac{1}{7}+3+\frac{3}{7}$ = ...

6. $2-\frac{2}{9}$ = ...

7. $5\times\frac{1}{4}=\frac{3}{4}+$ ....

8. $6\frac{1}{7}-2\frac{3}{7}$ = ...



[3] Choose the correct answer:

1. $\frac{5}{7} >$ ......
   A. $\frac{7}{7}$ B. $\frac{6}{7}$ C. $\frac{1}{7}$ D. 1

2. Which fraction is equivalent to $\frac{4}{12}$?
   A. $\frac{8}{20}$ B. $\frac{2}{9}$ C. $\frac{1}{4}$ D. $\frac{3}{9}$

3. Sameh has 20 cakes. If $\frac{3}{5}$ of them are covered with chocolate, then the number of chocolate cakes = ... cakes.
   A. 10 B. 13 C. 12 D. 17

4. The bar model that represents the fraction of the colored parts of the multiplication sentence $2 \times \frac{1}{5}$ is ......
   A. [bar: 2 of 4 parts colored] B. [bar: 2 of 5 parts colored] C. [bar: 3 of 4 parts colored] D. [bar: 3 of 5 parts colored]

5. $\frac{2}{3} = \frac{\ldots}{9}$
   A. 1 B. 4 C. 6 D. 8

6. $\frac{3}{8} <$ ......
   A. $\frac{3}{10}$ B. $\frac{3}{9}$ C. $\frac{3}{12}$ D. $\frac{3}{7}$

7. Peter ate $\frac{4}{6}$ of his chocolate bar. The fraction of the remaind part is ......
   A. $\frac{2}{3}$ B. $\frac{1}{6}$ C. $\frac{4}{6}$ D. $\frac{1}{3}$

[4] Answer the following:

1. Sara is making pancake batter. The recipe calls for $\frac{7}{10}$ of a jug of milk, and she only has $\frac{2}{10}$ of a jug of milk. How much more milk does Sara need to make the pancake batter?

   ....

   ....

2. Arrange the following fractions from the greatest to the least.

   $\frac{7}{9}, \frac{4}{9}, \frac{9}{9}, \frac{1}{9}, \frac{5}{9}$

   ....

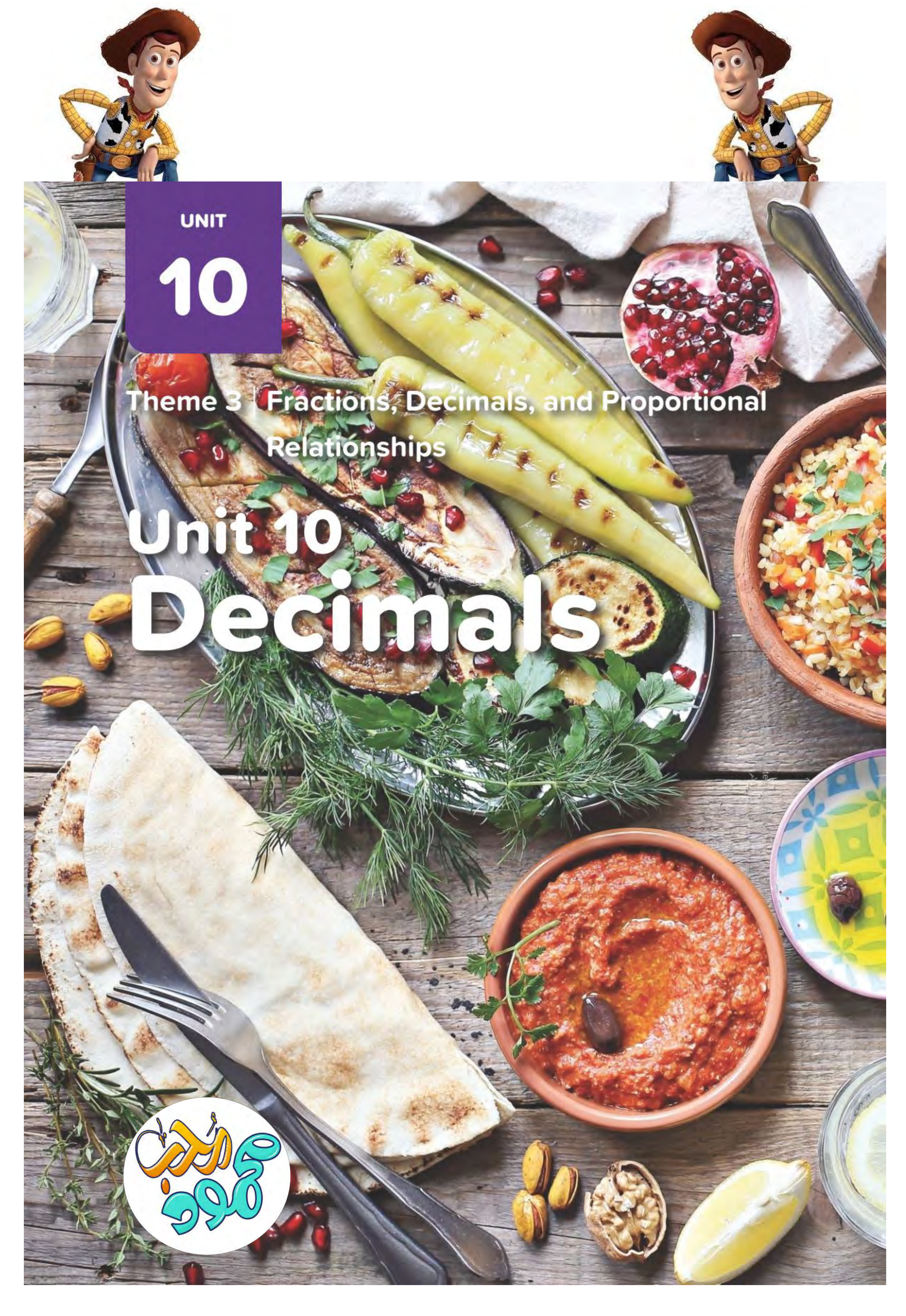
3. Use the benchmark fractions 0, $\frac{1}{2}$ and 1 to order the following fractions from least to greatest.

   $\frac{3}{8}, \frac{7}{9}, \frac{5}{10}$

   ....

4. Hagar used $3\frac{4}{6}$ kg of meat. Amal used $2\frac{2}{6}$ kg of meat. What is the total amount of meat did they use altogether?

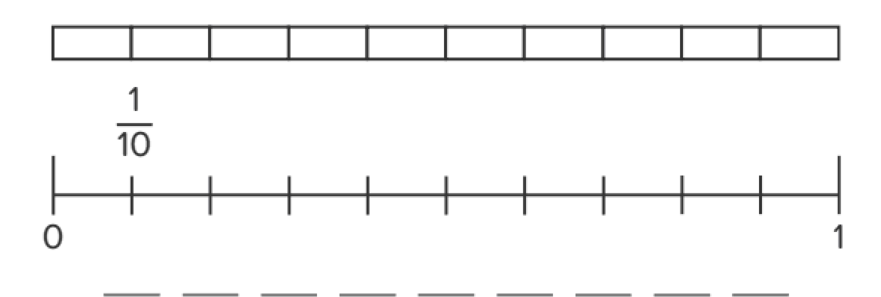
   ....


UNIT
10
Theme 3 | Fractions, Decimals, and Proportional Relationships
Unit 10
Decimals

Concept (1): Understanding Decimals

Lesson (1) Let's Explore Decimals

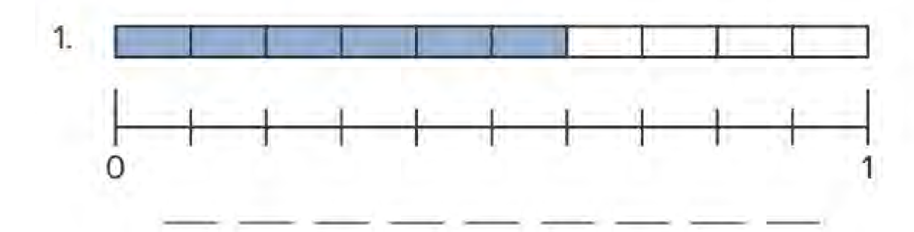
Break It Apart Follow along with your teacher to fill in the fractions and decimals on the number line.



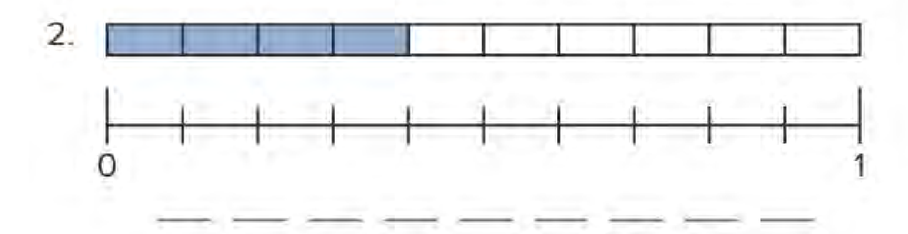


Connect the Parts Record what fraction and decimal are shown.

1.

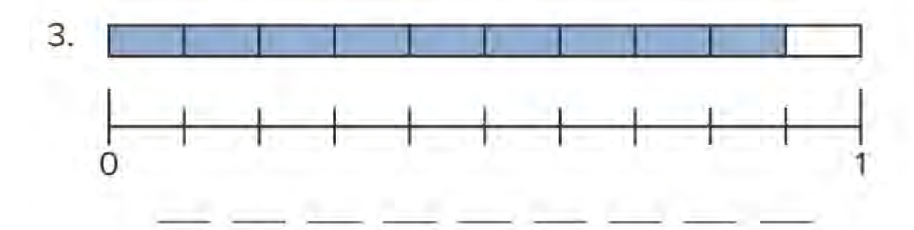


2.





3.





1. Write each fraction as a decimal.

a. $\frac{9}{10}$ = ______ b. $\frac{2}{10}$ = ______ c. $\frac{8}{10}$ = ______ d. $\frac{6}{10}$ = ______

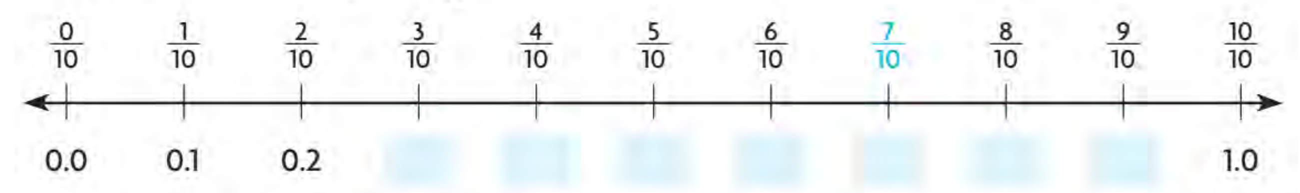
2. Write each decimal as a fraction.

a. 0.7 = ______ b. 0.1 = ______ c. 0.5 = ______ d. 0.4 = ______



Use a number line.

Label the number line with decimals that are equivalent to the fractions. Locate the point $\frac{7}{10}$.



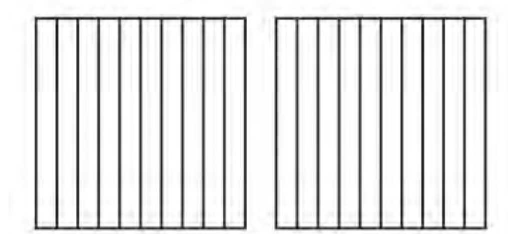
______ names the same amount as $\frac{7}{10}$.



Use a model and a place-value chart.

Fraction

Shade $1\frac{6}{10}$ of the model.



Write: ______

Read: one and six tenths

Decimal

$1\frac{6}{10}$ is 1 whole and 6 tenths.

Think: Use the ones place to record wholes.

Ones	.	Tenths	Hundredths
	.		

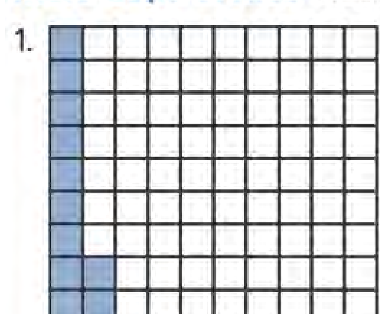
Write: ______

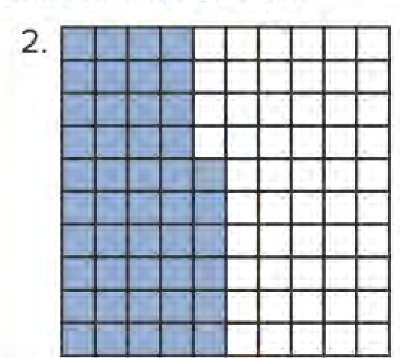
Read: ______



Lesson (2) Hundredths

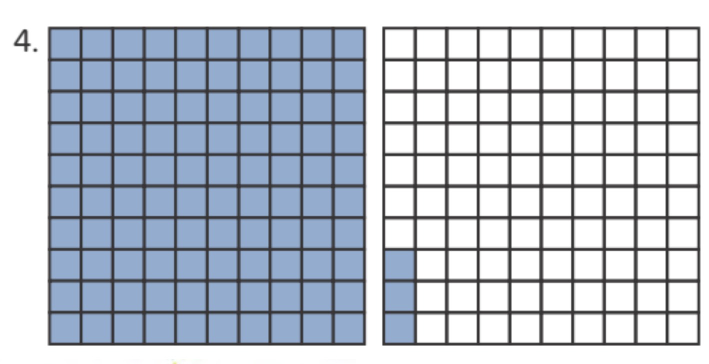
More Cups of Rice Record what decimal is shown.

1. 

2. 

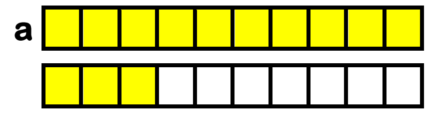


3.

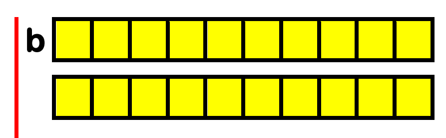
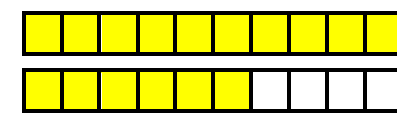
4. 



Circle the decimal that represent the shaded part:

a 

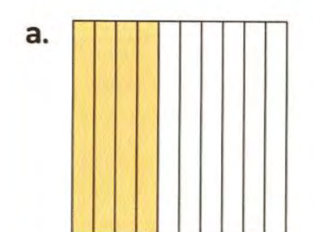
13.0 0.7 1.3

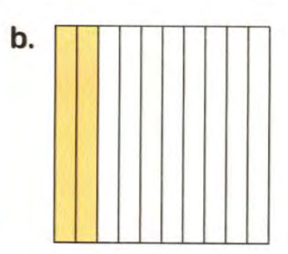
b  

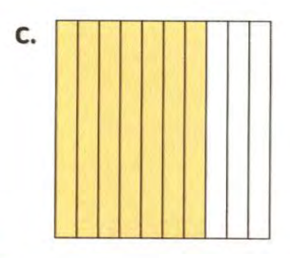
4 3.6 36

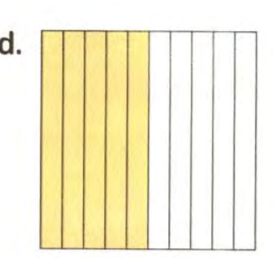
Homework

Write the fraction and decimal for the colored part.

a. 

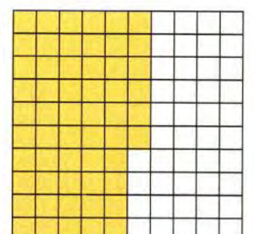
b. 

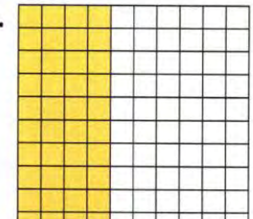
c. 

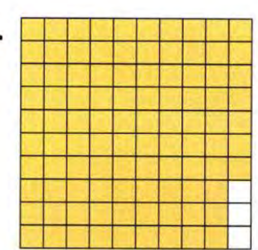
d. 

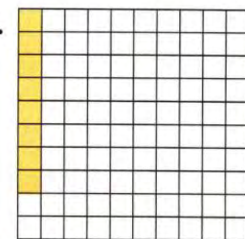


Write the decimal that represents each colored part.

a. 

b. 

c. 

d. 



Practice: Copy and Solve Write the fraction or mixed number as a decimal.

8. $5\frac{9}{10}$
9. $\frac{1}{10}$
10. $\frac{7}{10}$
11. $8\frac{9}{10}$
12. $\frac{6}{10}$
13. $6\frac{3}{10}$
14. $\frac{5}{10}$
15. $9\frac{7}{10}$



Practice: Copy and Solve Write the fraction or mixed number as a decimal.

8. $\frac{9}{100}$
9. $4\frac{55}{100}$
10. $\frac{10}{100}$
11. $9\frac{33}{100}$
12. $\frac{92}{100}$
13. $14\frac{16}{100}$



Lesson (3) The Place Value

Writing About Math Use the number to answer the questions: **532.89**



1. What is the value of the 3? ________
2. What digit is in the Hundredths place? ________
3. What is the value of the digit in the Hundreds place? ________
4. What digit is in the Tenths place? ________



In the number 325.78

a. What is the value of 7 ?

b. What is the value of 2 ?

c. What is the value of the digit in Hundredths place?





Lesson (4) Decimals in Different Forms

Use the example in the chart to help you answer the following problems.

Standard Form	Word Form	Unit Form	Expanded Form
4.23	four and twenty-three hundredths	4 Ones, 2 Tenths, 3 Hundredths	4 + 0.2 + 0.03



Write the numbers in word form.

1. 4.53

____

2. 0.48

____

3. 2 + 0.1 + 0.03

____



Write the numbers in unit form.

4. 4.52

____

5. seven and thirty-four hundredths

____

6. sixty-nine hundredths

____





Write the numbers in expanded form.

7. 2.04

____

8. two and fifty-Hundredths

____

9. 5 Ones, 6 Tenths, 8 Hundredths

____



Write the numbers in standard form.

10. 7 Ones, 9 Hundredths

____

11. 5 + 0.5 + 0.01

____

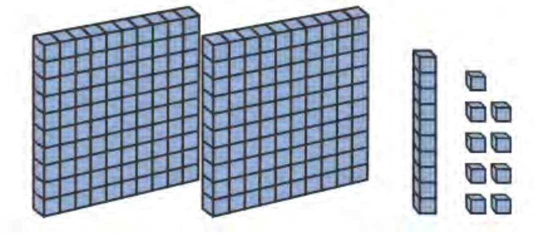
12. nine and forty-three Hundredths

____



Fill in the blanks to match the decimal models.

Example:



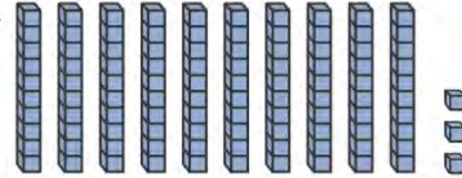
Standard form: 2.19

Word form: two and nineteen hundredths

Unit form: 2 Ones, 1 Tenth, 9 Hundredths

Expanded form: 2 + 0.1 + 0.09



13. 

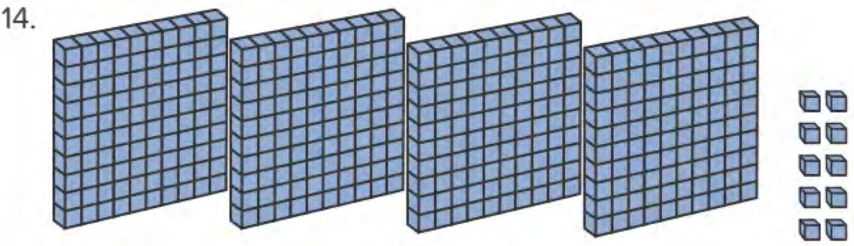


Standard form: ____________________

Word form: ____________________

Unit form: ____________________

Expanded form: ____________________

14. 

Standard form: ____________________

Word form: ____________________

Unit form: ____________________

Expanded form: ____________________



Homework

Write the value of the circled digit in each of the following.

a. 32.7④ ________

b. 174.②5 ________

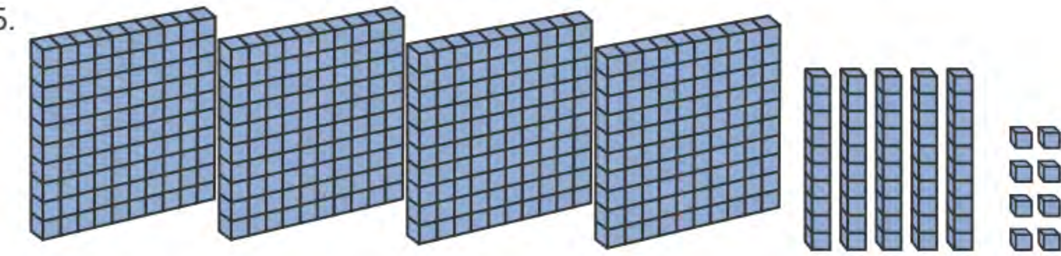
c. 1③5.58 ________

d. ⑦42.27 ________





15.



Standard form: ______________________

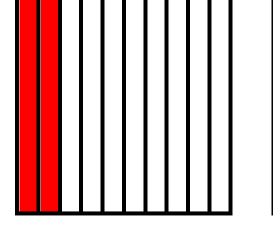
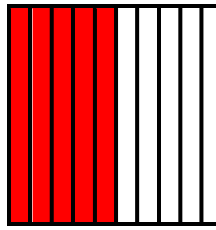
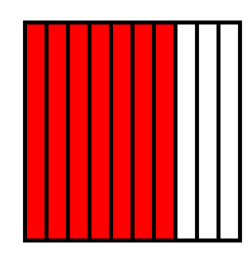
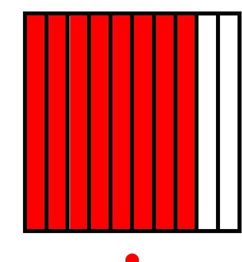
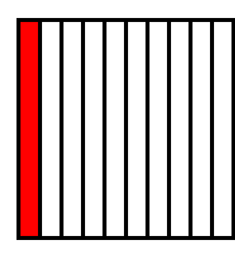
Word form: ______________________

Unit form: ______________________

Expanded form: ______________________



Join each decimal to its represented shape:

0.8	0.7	0.1	0.2	0.5

Complete:

a. The value of the digit 6 in the number 2.65 is ____________

b. The value of the digit 5 in the number 132.85 is ____________

c. The value of the digit 9 in the number 19.82 is ____________

d. The place value of the digit 7 in the number 2.74 is ____________

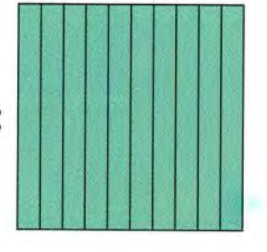
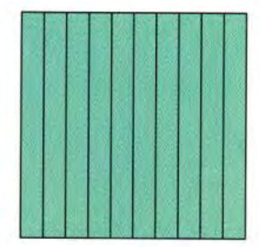
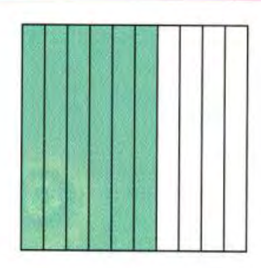
e. The place value of the digit 0 in the number 10.62 is ____________

f. The place value of the digit 5 in the number 12.15 is ____________

Concept (2): Decimals and Fractions

Lesson (5) Same Value, Different Ways

Model:


Mixed Number: $2\frac{6}{10}$

Decimal: 2.6

Word form: Two and six tenths.



Write the fraction for each of the following decimals.

a. 0.4 b. 0.13 c. 0.07 d. 2.93



a. $\frac{4}{10}$ b. $\frac{13}{100}$ c. $\frac{7}{100}$ d. $2\frac{93}{100}$



Write the fraction form for each of the following decimals:

a. 0.9 = ...	b. 2.7 = ...	c. 3.74 = ...
d. 7.05 = ...	e. 7.6 = ...	f. 3.4 = ...
g. 10.05 = ...	h. 2.02 = ...	i. 2.20 = ...
j. 5.97 = ...	k. 4.79 = ...	l. 6.28 = ...
m. 3.27 = ...	n. 5.17 = ...	o. 3.07 = ...





Lesson (6) The Whole Breakdown

Decompose the units to represent each number as Tenths and then write the number as a fraction:

a. 3

Tenths : ________

In fraction form : ________

b. 1

Tenths : ________

In fraction form : ________

c. 4

Tenths : ________

In fraction form : ________

d. 1.3

Tenths : ________

In fraction form : ________

e. 1.5

Tenths : ________

In fraction form : ________

f. 2.3

Tenths : ________

In fraction form : ________

g. 10.8

Tenths : ________

In fraction form : ________

h. 24.6

Tenths : ________

In fraction form : ________



Decompose the units to represent each number as Hundredth and then write the number as a fraction:

a. 1

Hundredths : ________

In fraction form : ________

b. 3

Hundredths : ________

In fraction form : ________

c. 19

Hundredths : ________

In fraction form : ________

d. 1.5

Hundredths : ________

In fraction form : ________





Complete.

a. 7 = ______ hundredths

b. ______ = 20 tenths

c. 3.4 = ______ tenths

d. 16 tenths = $\frac{\quad}{\quad}$

e. $\frac{185}{100}$ = ______ hundredths

f. 11.2 = ______ hundredths



Lesson (7) All Things Equal

Circle the equations that show the equivalency:

1. $\frac{1}{2} = \frac{3}{6}$
2. $\frac{2}{3} = \frac{2}{6}$
3. $\frac{8}{10} = \frac{4}{10}$
4. $\frac{8}{12} = \frac{4}{6}$
5. $\frac{2}{3} = \frac{6}{9}$
6. $\frac{4}{8} = \frac{0}{4}$
7. $\frac{1}{4} = \frac{5}{8}$
8. $\frac{2}{10} = \frac{4}{20}$
9. $\frac{5}{10} = \frac{1}{2}$



Write equivalent or not equivalent.

a. 0.7 and 0.70 ______

b. 0.04 and 0.4 ______

c. 0.9 and 0.09 ______

d. 0.28 and 0.82 ______

e. 0.17 and 0.07 ______

f. 0.1 and 0.10 ______



Write an equivalent decimal for each. You may use decimal models.

a. 0.8 ______

b. 0.7 ______

c. 0.90 ______

d. 0.2 ______

e. 0.5 ______

f. 0.10 ______

g. 0.40 ______

h. 0.6 ______



Write equivalent or not equivalent.

a. $\frac{3}{10}$ and $\frac{30}{100}$ ____________

b. $\frac{5}{100}$ and $\frac{50}{10}$ ____________

c. $\frac{80}{100}$ and $\frac{8}{10}$ ____________

d. $\frac{4}{100}$ and $\frac{4}{10}$ ____________

e. $\frac{60}{100}$ and $\frac{6}{10}$ ____________

f. $\frac{20}{100}$ and $\frac{2}{100}$ ____________



Write an equivalent fraction for each.

a. $\frac{7}{10}$ ______ b. $\frac{80}{100}$ ______ c. $\frac{9}{10}$ ______ d. $\frac{4}{10}$ ______

e. $\frac{10}{100}$ ______ f. $\frac{20}{100}$ ______ g. $\frac{3}{10}$ ______ h. $\frac{50}{100}$ ______



Fill the missing denominator or numerator. Circle the fraction that is more than 1 whole.

a. $\frac{5}{10} = \frac{50}{\square}$ b. $\frac{20}{100} = \frac{\square}{10}$ c. $\frac{4}{10} = \frac{40}{\square}$

d. $\frac{200}{100} = \frac{\square}{10}$ e. $\frac{70}{\square} = \frac{7}{10}$ f. $\frac{80}{10} = \frac{\square}{100}$

g. $\frac{3}{10} = \frac{\square}{100}$ h. $\frac{60}{100} = \frac{\square}{10}$ i. $\frac{70}{10} = \frac{\square}{100}$

j. $\frac{900}{100} = \frac{\square}{10}$ k. $\frac{8}{\square} = \frac{80}{100}$ l. $\frac{10}{100} = \frac{\square}{10}$



Homework



MULTIPLICATION

4 × 3 = ☐	4 × 5 = ☐	4 × 4 = ☐
4 × 6 = ☐	4 × 0 = ☐	4 × 7 = ☐
4 × 2 = ☐	4 × 1 = ☐	4 × 9 = ☐

8 × 7 = ☐	8 × 3 = ☐	8 × 4 = ☐
8 × 8 = ☐	8 × 2 = ☐	8 × 1 = ☐
8 × 5 = ☐	8 × 6 = ☐	8 × 0 = ☐



Decompose the units to represent each number as Tenths and then write the number as a fraction:

1. 1

   Tenth ____________

   In fraction form ____________

2. 3

   Tenths ____________

   In fraction form ____________

3. 1.5

   Tenths ____________

   In fraction form ____________

4. 2.3

   Tenths ____________

   In fraction form ____________



Decompose the units to represent each number as Hundredth and then write the number as a fraction:

6. 1

Hundredths ________________

In fraction form ________________

7. 3

Hundredths ________________

In fraction form ________________

8. 1.5

Hundredths ________________

In fraction form ________________

9. 2.3

Hundredths ________________

In fraction form ________________



Record an equivalent fraction and decimal for each problem:

1. $\frac{1}{10}$

Fraction: ________________

Decimal: ________________

2. $\frac{70}{100}$

Fraction: ________________

Decimal: ________________

3. $\frac{6}{10}$

Fraction: ________________

Decimal: ________________

4. 0.4

Fraction: ________________

Decimal: ________________

5. 0.30

Fraction: ________________

Decimal: ________________

6. 0.9

Fraction: ________________

Decimal: ________________



Concept (3): Operations on Decimals

Lesson (8) Comparing Decimals

Using the place value chart, Put (<), (>) or (=):

1. 0.34 ________ 0.4

Ones	Decimal	Tenths	Hundredths
0	.	3	4
0	.	4	

4. 0.54 ________ 0.45

Ones	Decimal	Tenths	Hundredths
	.		
	.		



5. 0.62 ________ 0.26

Ones	Decimal	Tenths	Hundredths
	.		
	.		



Compare Using (<), (>) or (=):

a. 0.2 ◯ 0.13

d. 0.30 ◯ 0.3

g. 0.18 ◯ 0.4

b. 0.31 ◯ 0.13

e. 0.35 ◯ 0.3

h. 0.60 ◯ 0.8

c. 0.34 ◯ 0.04

f. 0.7 ◯ 0.68

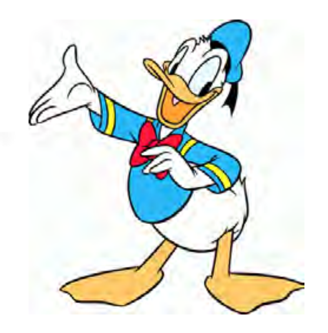
i. 0.07 ◯ 0.7



Lesson (9) Comparing Fractions and Decimals

Compare Using (<), (>) or (=):

1. $\frac{24}{100}$ ______ 0.6
2. $\frac{6}{10}$ ______ 0.34
3. 1.04 ______ 98 Tenths
4. $\frac{134}{100}$ ______ 1.03
5. $\frac{9}{10}$ ______ 0.89
6. 7 Tenths ______ 0.7
7. 2.07 ______ 2 Ones and 7 Tenths
8. $\frac{50}{100}$ ______ 5.00



Choose the correct answer from A, B, C or D:

1. 0.4 ◯ 0.34
   A. < B. = C. >

2. 4.5 ◯ 4.51
   A. < B. > C. =

3. 2.4 ◯ $2\frac{42}{100}$
   A. > B. < C. =

4. $\frac{125}{100}$ ◯ 1.3
   A. > B. < C. =

5. 3.74 ◯ $\frac{374}{100}$
   A. > B. < C. =

6. 0.9 < ______
   A. 0.7 B. 0.15
   C. 0.8 D. 1.2

7. Which of the following is greater than 1.64 ?
   A. 1.7 B. 1.5
   C. 1.47 D. 1.08

8. Which of the following is smaller than $\frac{36}{100}$?
   A. $\frac{4}{10}$ B. 0.7
   C. 0.53 D. 0.23

9. 7 tenths ◯ $\frac{17}{100}$ [Alex. 23]
   A. > B. = C. <

10. 17 hundredths ◯ 17 tenths
    A. > B. < C. =



Lesson (10,11) — Adding Fractions with Denominators 10 and 100

Make Equivalent Fractions:

1. $\frac{30}{100} = \frac{\square}{10}$

2. $\frac{4}{10} = \frac{40}{\square}$

3. $\frac{2}{10} = \frac{\square}{100}$

4. $\frac{90}{100} = \frac{\square}{10}$



5. $\frac{50}{100} = \frac{\square}{10}$

6. $1\frac{70}{100} = 1\frac{7}{\square}$

7. $\frac{100}{100} = \frac{\square}{10}$

8. $\frac{40}{10} = \frac{\square}{100}$

9. $\frac{600}{100} = \frac{60}{\square}$

10. $2\frac{8}{10} = 2\frac{\square}{100}$

Complete to find the result:

a. $\frac{6}{10} + \frac{23}{100} = \frac{___}{100} + \frac{23}{100} = \frac{___}{100}$

b. $\frac{7}{10} + \frac{60}{100} = \frac{7}{10} + \frac{___}{10} = \frac{___}{10}$

c. $\frac{3}{10} + \frac{8}{100} = \frac{___}{100} + \frac{8}{100} = \frac{___}{___}$

d. $\frac{23}{100} + \frac{9}{10} = \frac{23}{100} + \frac{___}{100} = \frac{___}{___}$

e. $\frac{32}{100} + \frac{5}{10} = \frac{32}{100} + \frac{___}{100} = \frac{___}{___}$

f. $\frac{6}{10} + \frac{82}{100} = \frac{___}{100} + \frac{82}{100} = \frac{___}{___}$



Homework

Using the place value chart, Put (<), (>) or (=):

6. 0.80 ________ 0.09

Ones	Decimal	Tenths	Hundredths
	.		
	.		

7. 0.73 ________ 0.69

Ones	Decimal	Tenths	Hundredths
	.		
	.		



8. 0.10 ________ 0.1

Ones	Decimal	Tenths	Hundredths
	.		
	.		

9. 0.49 ________ 0.04

Ones	Decimal	Tenths	Hundredths
	.		
	.		



Compare Using (<), (>) or (=):

a. 0.52 ◯ 0.54

d. 3.7 ◯ 3.70

b. 0.9 ◯ 0.82

e. 3.4 ◯ 4.56

c. 1.52 ◯ 1.45

f. 2.05 ◯ 2.15



Choose the correct answer from A, B, C or D:

11. Which of the following is **NOT** true ?

A. $7.32 < 7.4$ B. $3.78 > 3.54$
C. $0.01 < 0.1$ D. $\frac{13}{10} > 3.1$

12. Which of the following is true ?

A. $0.53 > 0.55$ B. $0.03 > 0.3$
C. $1.1 > 0.99$ D. $4.8 < 4.75$



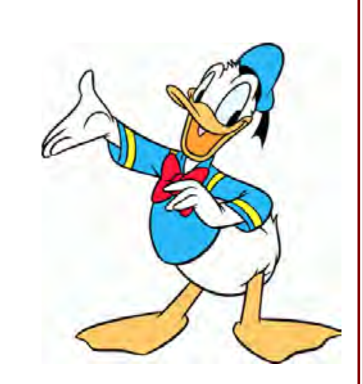
Make Equivalent Fractions:

a. $\frac{6}{10} = \frac{__}{100}$

c. $\frac{4}{10} = \frac{40}{__}$

e. $\frac{70}{100} = \frac{7}{__}$

g. $\frac{80}{100} = \frac{8}{__}$





Find the result:

a. $\frac{6}{10} + \frac{23}{100} = \frac{__}{100} + \frac{23}{100} = \frac{__}{100}$

b. $\frac{7}{10} + \frac{60}{100} = \frac{7}{10} + \frac{__}{10} = \frac{__}{10}$

c. $\frac{3}{10} + \frac{8}{100} = \frac{__}{100} + \frac{8}{100} = \frac{__}{__}$

d. $\frac{23}{100} + \frac{9}{10} = \frac{23}{100} + \frac{__}{100} = \frac{__}{__}$

e. $\frac{32}{100} + \frac{5}{10} = \frac{32}{100} + \frac{__}{100} = \frac{__}{__}$

f. $\frac{6}{10} + \frac{82}{100} = \frac{__}{100} + \frac{82}{100} = \frac{__}{__}$





Unit (10) Assessment

[1] Choose the correct answer:

a. The value of the digit 3 in the number 15.23 is ______

A. 0.03   B. 0.30   C. 3   D. 30

b. 0.07 = ______ "as a fraction."

A. $\frac{7}{10}$ B. $\frac{7}{100}$ C. $\frac{70}{10}$ D. $\frac{70}{100}$

c. 1.52 ◯ 1.6

A. >   B. <   C. =

d. 7 + 0.1 + 0.05 = ______

A. 71.5   B. 7.15   C. 7.51   D. 1.75

e. Which fraction is equivalent to 0.9 ?

A. $\frac{90}{10}$ B. $\frac{9}{100}$ C. $\frac{9}{10}$ D. 90

f. $\frac{35}{100} + \frac{2}{10} <$ ______

A. $\frac{7}{10}$ B. $\frac{55}{100}$ C. $\frac{3}{10}$ D. $\frac{49}{100}$

g. The digit in the tenths place in the number 56.79 is ______

A. 5   B. 6   C. 7   D. 9



[2] Complete:

a. $\frac{5}{10} + \frac{25}{100} =$ ______

b. 5.7 = ______ tenths

c. 3.16 in word form is ______

d. The place value of the digit 3 in the number 54.32 is ______

e. Six and eight hundredths = ______ in standard form.

f. 21.7 = ______ hundredths

g. $3\frac{7}{10}$ is equivalent to ______ as decimal.

h. 5 tens and 3 tenths = ______

[3] Choose the correct answer:

a. $0.07 + 0.2 =$ ....

A. 72 tenths B. 27 tenths C. 72 hundredths D. 27 hundredths

b. $2\frac{1}{10} + 3\frac{1}{100} =$ ....

A. 5.2 B. 5.12 C. 5.11 D. 5.22

c. $7.2 >$ ....

A. 7.3 B. 7.16 C. 7.20 D. 7.29

d. $\frac{2}{10} + \frac{27}{100} =$ ....

A. $\frac{29}{100}$ B. $\frac{209}{100}$ C. $\frac{47}{100}$ D. $\frac{49}{100}$

e. 0.34 ◯ 0.4

A. > B. < C. =

f. $\frac{810}{100} = \frac{\ldots}{10}$

A. 8100 B. 810 C. 81 D. 8.1

g. $1\frac{40}{100} =$ ....

A. 140 B. 14 C. 1.4 D. 1.04



[4] Answer the following:

1. Amira bought 1.5 kilograms of tomatoes. Nada bought 1.6 kilograms of tomatoes. Who bought less ?

....

2. Adam drank 0.6 liter of juice. Omar drank $\frac{4}{10}$ liter of juice. Who drank more ?

....

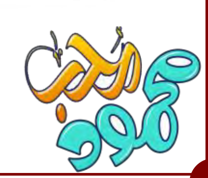
3. Samy has $\frac{5}{10}$ liters of orange juice and $\frac{35}{100}$ liters of apple juice. How many liters does samy have in all ?

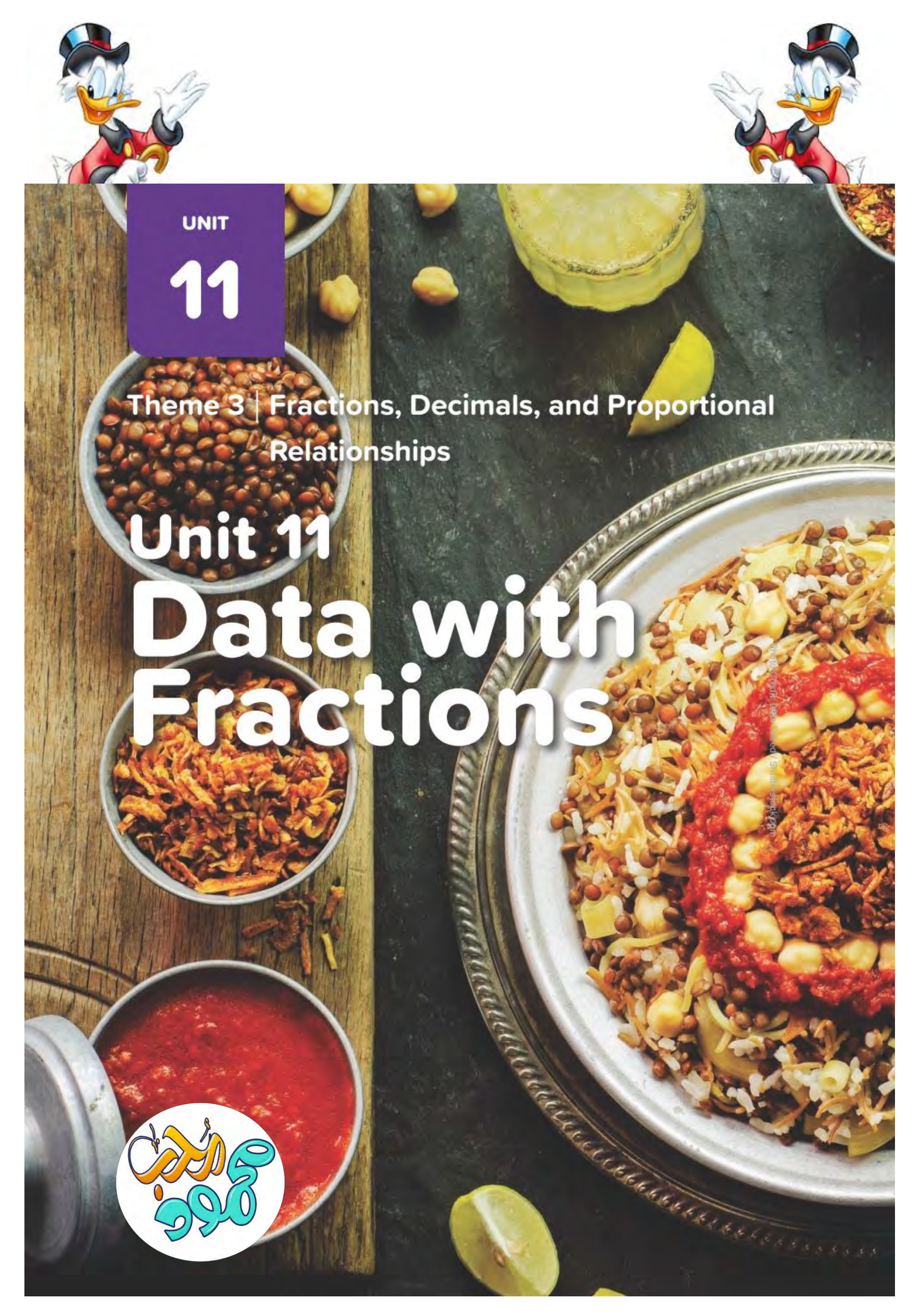
....

4. Maha wrote 7.03 in word form as seven and 3 tenths
Is Maha right or wrong ? If she is wrong correct her mistake.

....






UNIT
11
Theme 3 | Fractions, Decimals, and Proportional Relationships
Unit 11
Data with Fractions

Concept (1)
Creating and Analyzing Graphs

Lesson (1) Different Graphs

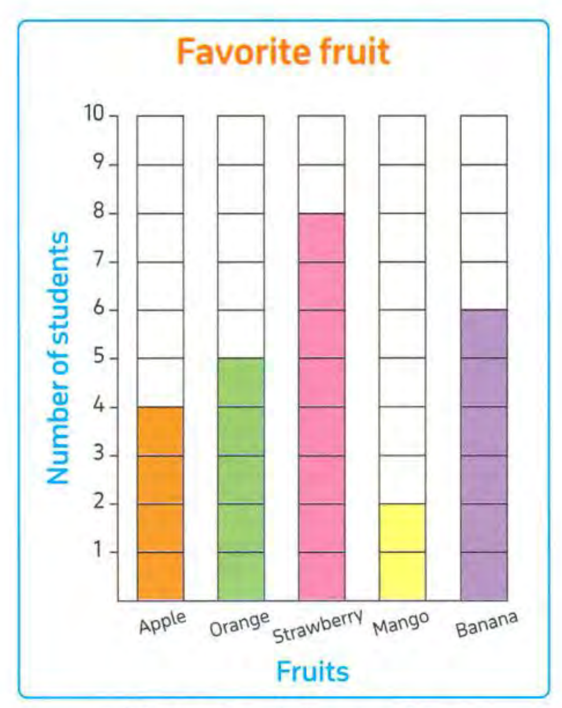
Remember

You have learned before that data can be represented by more than one way.

For example :

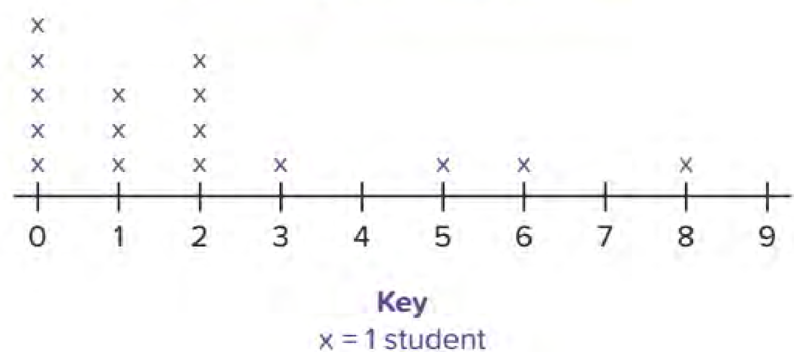
- These data about students' favorite fruit.
  Sandra represented the following data by a bar graph.

Favorite fruit	
Fruits	Number of students
Apple	4
Orange	5
Strawberry	8
Mango	2
Banana	6

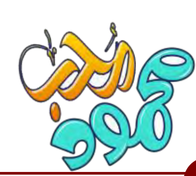


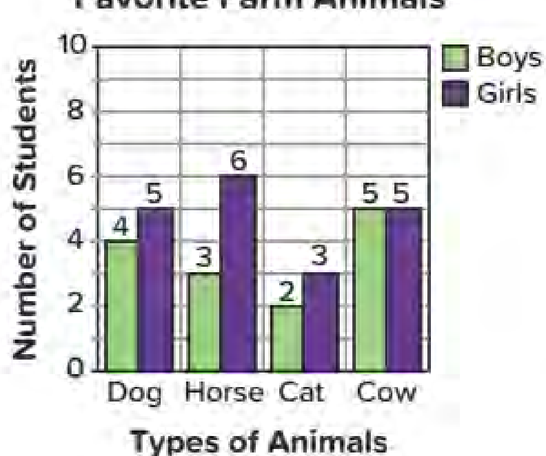
A bar graph is used to compare data.

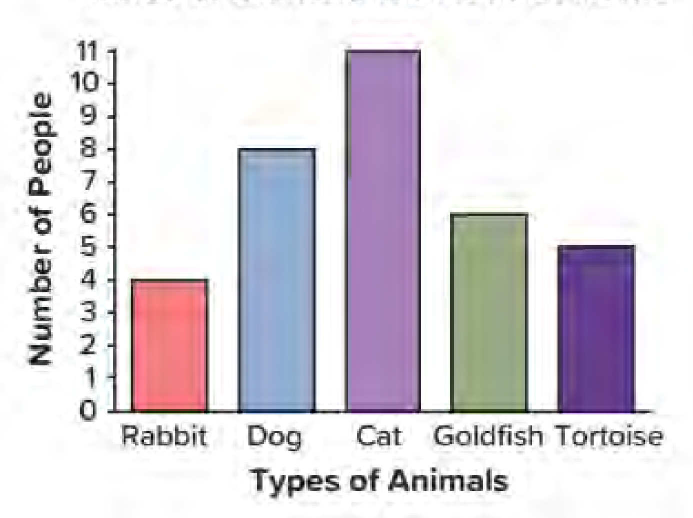


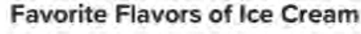


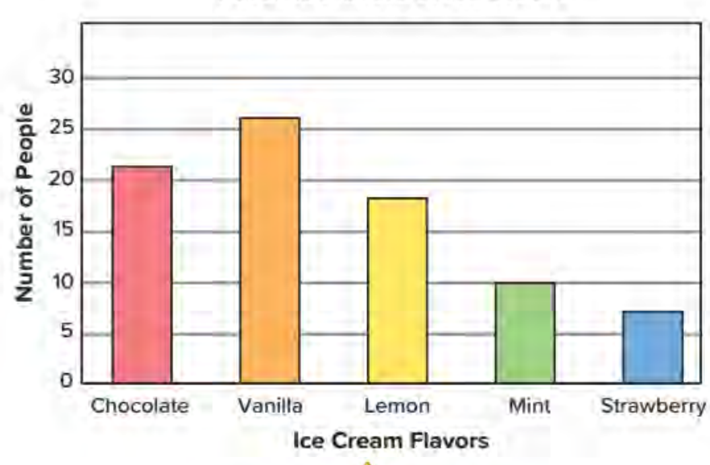














Observe the given graph and answer the following questions.

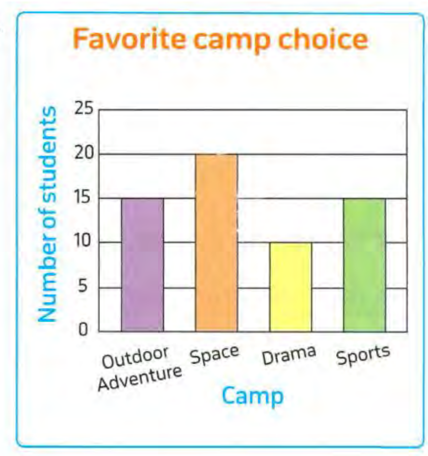
a. Which camp do most students prefer ?

b. Which camp was chosen by the fewest students ?

c. How many students chose space camp ?

d. How many more students chose space camp than sports camp ?

e. Which two camps were chosen by the same number of students ?







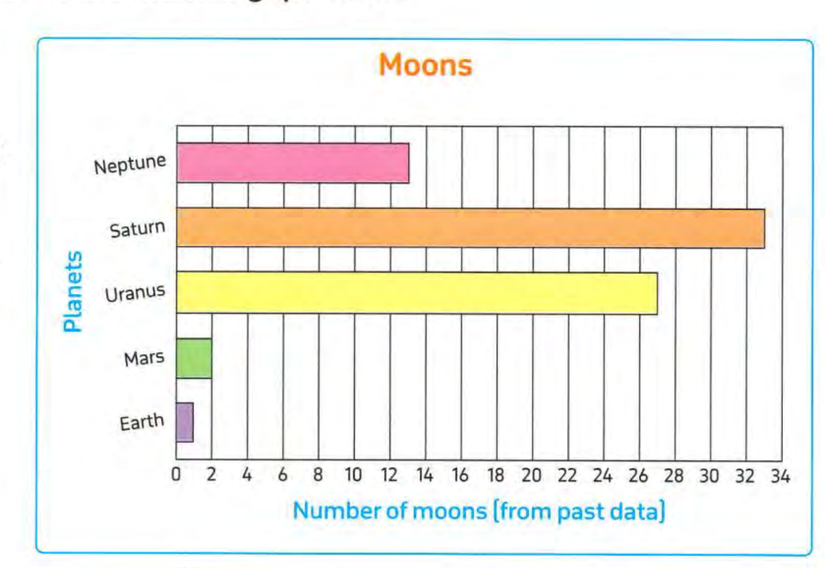
Observe the given graph and answer the following questions.

a. Which plant has the lowest number of moons ?

b. What is the number of moons around Mars ?

c. Which planet has less moons than Neptune but more than Earth ?

d. Which planet has more moons than Mars but fewer than Uranus ?





Observe the given graph and answer the following questions.

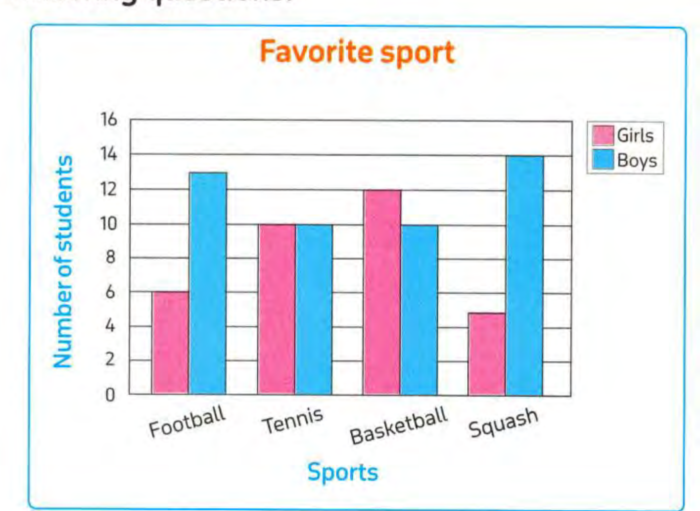
a. Which is the most preferred sport of the girls ?

b. Which is the most preferred sport of the boys ?

c. How many girls like squash ?

d. Which sport is liked by 10 girls ?

e. How many students like basketball ?





The data showing the favorite fast food of boys and girls of grade four.

Fast Food	Pizza	Noodles	Pasta	Burgers
Boys	25	40	15	25
Girls	30	35	30	45

Circle the best type of graph that represents this data.

Line plot | bar graph | pictograph | double bar graph





The following graph shows students' votes for their favorite animals.

Answer the following questions.

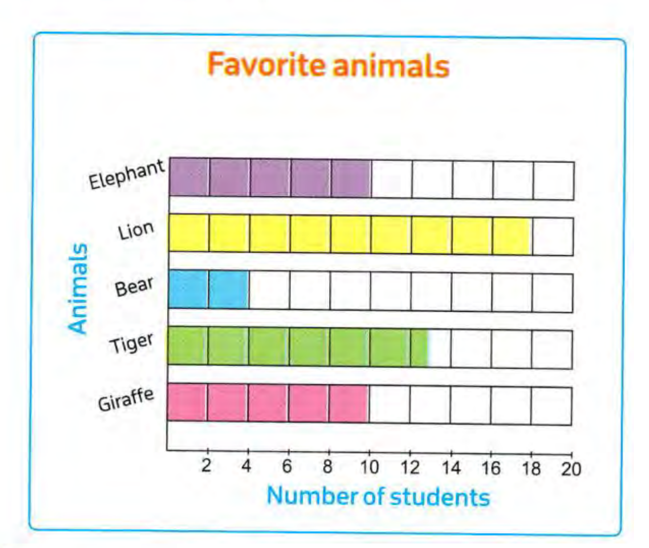
a. Which animal is liked the most ?

b. Which animal is liked the least ?

c. How many students liked tiger ?

d. Which two animals were liked by the same number of students ?

e. How many more students liked tiger than bear ?





The following graph shows students' votes for their favorite activities.

Complete the following table. Then, answer the questions.

	Favorite activities				
Activity	Drawing	Crafts	Sports	Reading	Singing
Number of students					

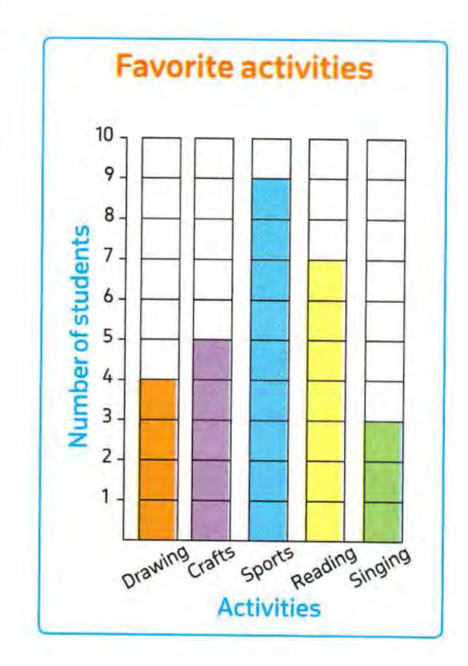
a. Which activity did the most students prefer ?

b. Which activity was chosen by the fewest students ?

c. How many students chose reading ?

d. How many more students chose sports than crafts ?

e. Which two activities their sum equals the number of students chose sports ?

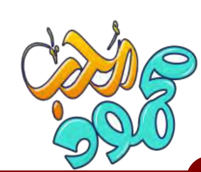




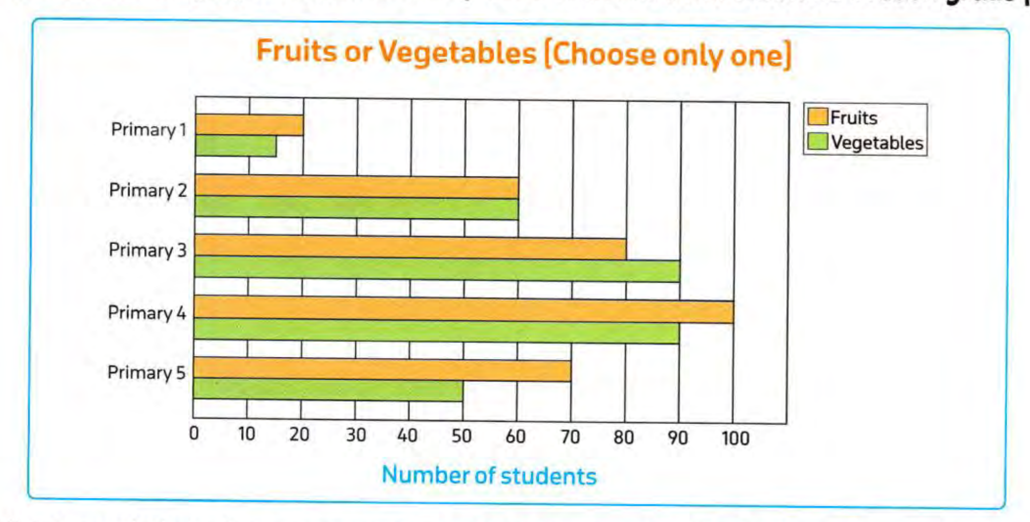
Which type of graph would be best to represent the highest and the lowest temperature degrees in Cairo for 5 days ?

A. Bar graph B. Pictograph C. Double bar graph D. Line plot





Use the double bar graph to answer the questions about what students in each grade prefer.



a. Which grade has the same number of students who like fruits and vegetables ?

b. Which grade likes vegetables more than fruits ?

c. How many more students in Primary 4 like fruits versus students in Primary 1 ?

d. How many students like fruits in both Primary 1 and 2 ?

e. How many more students in Primary 2 and Primary 3 like vegetables than in Primary 4 and Primary 5 ?

f. How many total students were surveyed ?

g. Why is this a good data set to use a double bar graph ?



A meteorologist compares rain fall in 2000 and 2020 in different countries in Sub-Saharan Africa.

Circle the best type of graph that represents this data.

Line plot	bar graph	pictograph	double bar graph





Lesson (2) — Plotting Along

1. Use the following data to make a line plot.

$6\frac{1}{2}$	7	5	7	7	6	$6\frac{1}{2}$	$7\frac{1}{2}$	$5\frac{1}{2}$	$6\frac{1}{2}$
$5\frac{1}{2}$	6	$6\frac{1}{2}$	$6\frac{1}{2}$	$5\frac{1}{2}$	7	5	6	$6\frac{1}{2}$	$5\frac{1}{2}$



Use the following data to create a line plot, then answer the questions.

a. 11 kg ; $12\frac{1}{4}$ kg ; $11\frac{3}{4}$ kg ; $11\frac{1}{2}$ kg ; 12 kg ; $11\frac{1}{2}$ kg ; $11\frac{1}{4}$ kg ; $11\frac{1}{4}$ kg ; $11\frac{1}{2}$ kg ; 12 kg

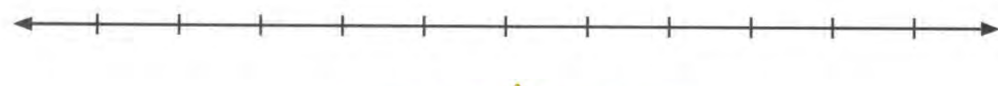


1. Give the line plot a title.
2. What is the most common record ?
3. What is the least common records ?



The following data shows the marks of mathematics test for students. Create a line plot for the given data.

18	19	17	$18\frac{1}{2}$	20	$16\frac{1}{2}$	$18\frac{1}{2}$	$19\frac{1}{2}$	$17\frac{1}{2}$	20	17	$18\frac{1}{2}$
17	$17\frac{1}{2}$	$18\frac{1}{2}$	$17\frac{1}{2}$	19	$18\frac{1}{2}$	$17\frac{1}{2}$	17	$18\frac{1}{2}$	20	18	$17\frac{1}{2}$





Lesson (3) Breaking the Bar

The following data shows the walking distance in a week by two friends Bassem and Amal. The data are given in kilometers. Represent these data by a double bar graph showing the week's data. Then use the graph to answer the following questions.

Days / Name	Sunday	Monday	Tuesday	Wednesday	Thursday
Bassem	$2\frac{1}{4}$	$1\frac{1}{2}$	$3\frac{3}{4}$	3	$3\frac{1}{2}$
Amal	$1\frac{3}{4}$	$1\frac{1}{2}$	$2\frac{1}{2}$	$3\frac{1}{4}$	4

a. Which day Bassem walked the longest distance ?

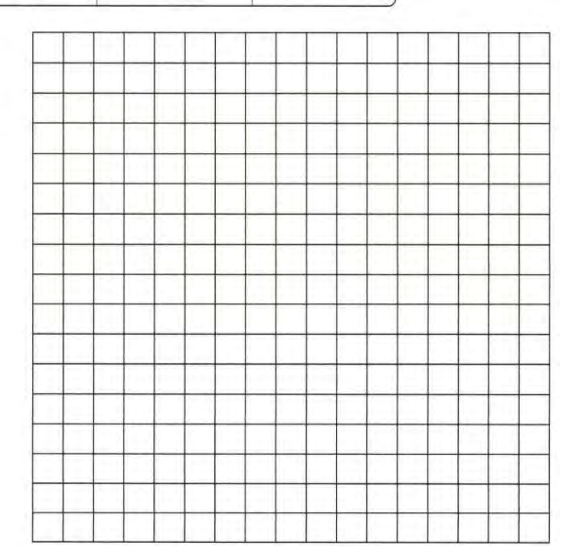
b. Which day Amal walked the shortest distance ?

c. On which day did Bassem and Amal's total distance equals 4 kilometers ?

d. How many total kilometers did Amal walk in all ?

e. How many total kilometers did Bassem walk in all ?

f. On which day did Bassem walk twice as far as he did in Monday ?



2. The following data shows the marks of three students in Mathematics and Science tests and full mark is 10.

Represent these data using double bar graph.

Name / Subject	Andy	Reem	Nour
Mathematics	7	6	$5\frac{1}{2}$
Science	$7\frac{1}{2}$	$6\frac{1}{2}$	8



Homework

b. 3 m ; $3\frac{1}{3}$ m ; $4\frac{1}{3}$ m ; $3\frac{2}{3}$ m ; $3\frac{1}{3}$ m ; $4\frac{2}{3}$ m ; $4\frac{1}{3}$ m; 3 m ; $3\frac{1}{3}$ m ; $4\frac{2}{3}$ m.

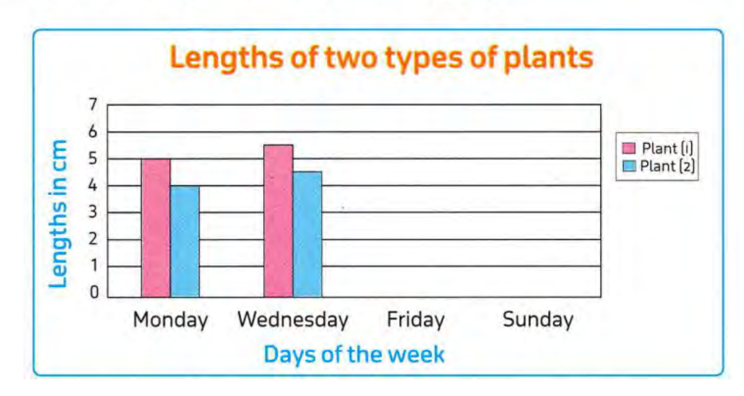


1. Give the line plot a title.
2. What is the most common record ?
3. What is the least common record ?

Kamal recorded the lengths of two types of plants in four days as follow :

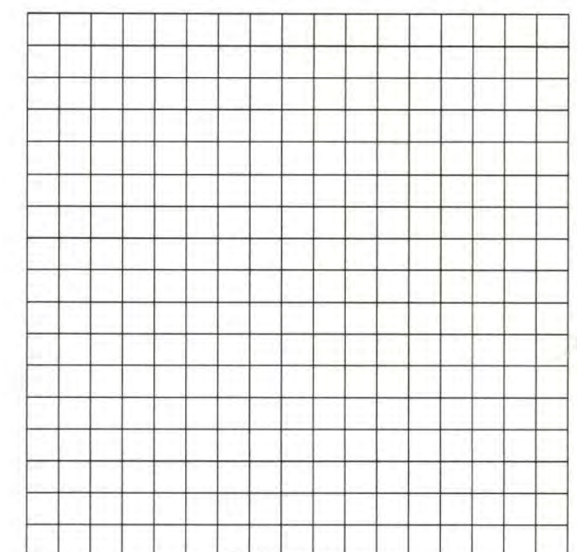
	Mon.	Wed.	Fri.	Sun.
Plant(1)	5 cm	$5\frac{2}{5}$ cm	6 cm	$6\frac{1}{5}$ cm
Plant(2)	4 cm	$4\frac{2}{5}$ cm	$4\frac{3}{5}$ cm	5 cm

a. Use the above data to complete the following graph :



Marwan made a table to show the marks for his team , the Goldenrods , and the opposing team in the first three exams. What type of graph would be most appropriate for Marwan to use to display these data ? Explain.

Marks Scored in Each Exam			
Team	Exam **1**	Exam **2**	Exam **3**
Goldenrods	$30\frac{1}{2}$	$31\frac{1}{4}$	$31\frac{1}{2}$
Opponents	$32\frac{1}{4}$	$30\frac{1}{2}$	$31\frac{1}{4}$



Represent these data by this type of graph.



[1] Choose the correct answer:

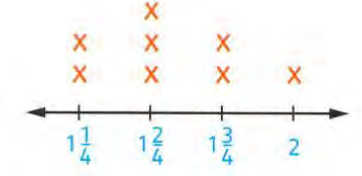
a. Which of the following can be represented by a line plot ?
A. Our favorite sports.
B. Our favorite colors.
C. Our weights.
D. Our favorite food.

b. Which of the following can be represented by a double bar graph ?
A. Favorite animal .
B. Marks of friends in Math .
C. Marks of friends in Math and Arabic .
D. Our heights.

c. To represent the number of walking hours for Ahmed and Hassan in one week you can use ______
A. line plot.
B. pictograph.
C. double bar graph.
D. bar graph.

d. Maged collected some data about the favorite pet of his friends. Which kind of representing data is the best ?
A. Line plot.
B. Double bar graph.
C. Bar graph.

e. In the opposite figure, the number which is the most repeated is ______



A. 1
B. $1\frac{3}{4}$
C. $1\frac{2}{4}$
D. $1\frac{1}{4}$

f. Which type of graph is suitable for these data ?

A. Line plot
B. Bar graph
C. Double bar
D. Otherwise

Name	Ahmed	Nora	Ola	Ali
Age	13	17	15	10

g. Which type of graph is suitable for these data ?

Subject	Math	English	Arabic	Science	Art
Hany	20	19	15	18	17
Mona	17	20	19	20	15

A. Double bar graph.
B. Line plot.
C. Bar graph.
D. pictograph.



[2] Complete:

• The opposite graph shows the marks of four students in Math and Science tests.

Complete from (a) to (d).

Markes of Math and Science tests

Marks: 20, 18, 16, 14, 12, 10, 8, 6, 4, 2

Math / Science

Yara, Jody, Sara, Yasmin

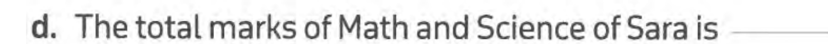
Name

a. The student who got the highest mark in Math is ....

b. The difference between the Math mark and Science mark of Yasmin is ....

c. The student who got the lowest mark in Science is ....

d. The total marks of Math and Science of Sara is ....



• The opposite table represent the favorite color of some students.

Complete from (e) to (h).

e. The most favorite color is ....

f. The total number of students is ....

g. The number of students who liked red and yellow is ....

h. The difference between the number of students who liked green and white is ....

The favorite color	
Color	**Number**
Red	12
Yellow	18
Black	4
White	11
Green	9



[3] Choose the correct answer:

a. Which type of graph is suitable to represent these data ?

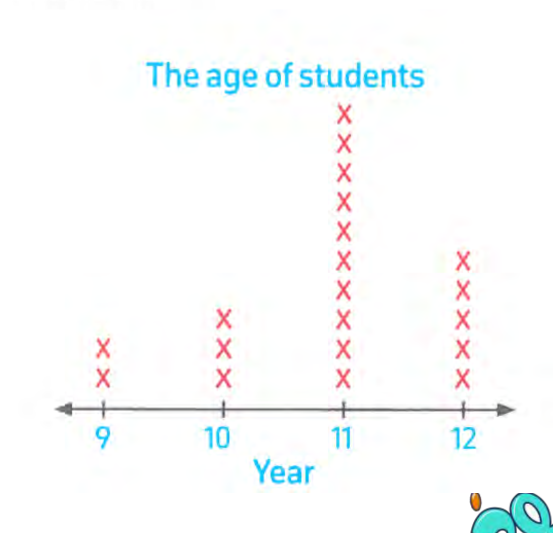
Number of hours	0	1	2	3	4	5
Number of students	2	4	10	11	3	1

A. Double bar graph. B. Line plot. C. Pictograph.

b. In the opposite line plot, if it represents the ages of 40 students in grade 4, then each X stands for .... student[s].

A. one B. two

C. three D. four



c. Which type of graph is suitable to represent these data ?

1	3	2	5	1	4
3	2	4	1	3	1
2	1	3	4	1	5

A. Double bar graph.

B. Line plot.

C. Bar graph.

d. From the opposite table the value of X is ______

Books Readers	
Name	**Number**
Amgad	4
Ola	5
Nora	10
Alaa	X
Noha	2
Total	**30**

A. 6 B. 7

C. 8 D. 9

e. The football coach scored the following numbers of goals in the last twenty matches.

3 , 0 , 1 , 5 , 4 , 3 , 2 , 6 , 4 , 2 , 3 , 3 , 0 , 7 , 1 , 1 , 2 , 3 , 4 , 3

Which number had the highest frequency ?

A. 3 B. 5 C. 6 D. 7

f. Which type of graph is suitable to represent these data ?

Test Evaluation	
Evaluation	**Total**
Excellent	2
V.good	8
Good	6
Pass	4

A. Double bar graph.

B. Line plot.

C. Bar graph.

g. From the opposite table, the value of X is ______

Subject Marks	
Subject	**Number**
Math	X
English	13
Arabic	15
Science	11
Music	6
Total	**50**

A. 6 B. 4

C. 5 D. 6





[4] Answer the following:

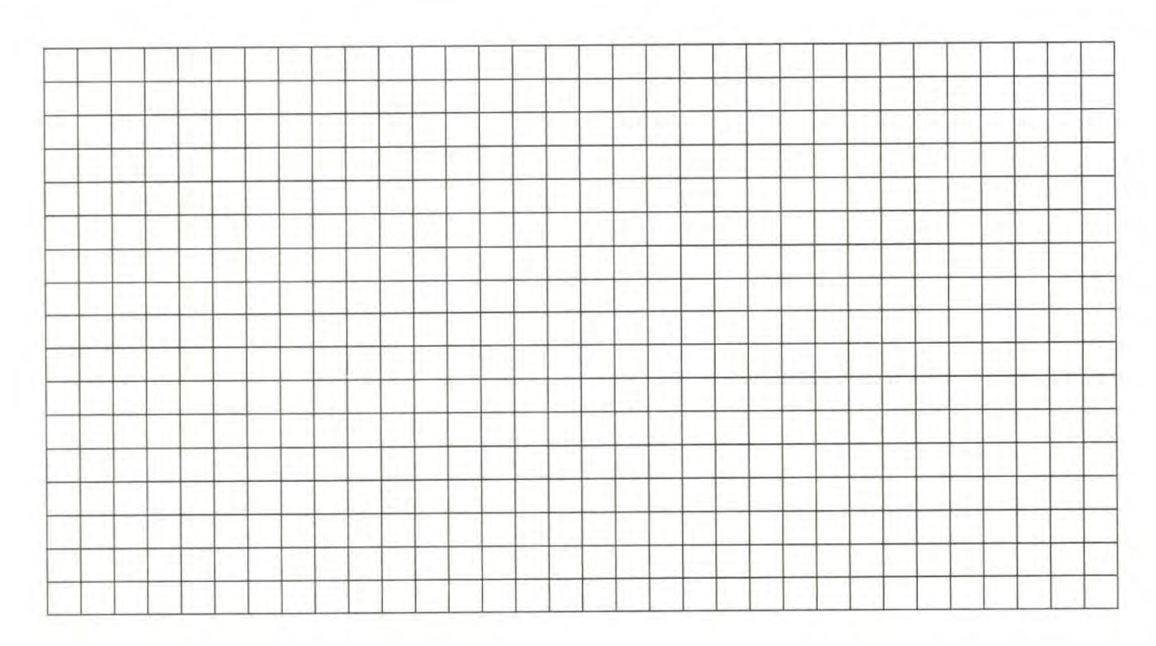
a. Use the following data to make a line plot.

$5\frac{1}{2}$	$3\frac{1}{2}$	$6\frac{1}{2}$	$4\frac{1}{2}$	$5\frac{1}{2}$	$4\frac{1}{2}$	$6\frac{1}{2}$	$5\frac{1}{2}$	$4\frac{1}{2}$	$5\frac{1}{2}$
4	3	5	$5\frac{1}{2}$	$3\frac{1}{2}$	4	6	6	4	5



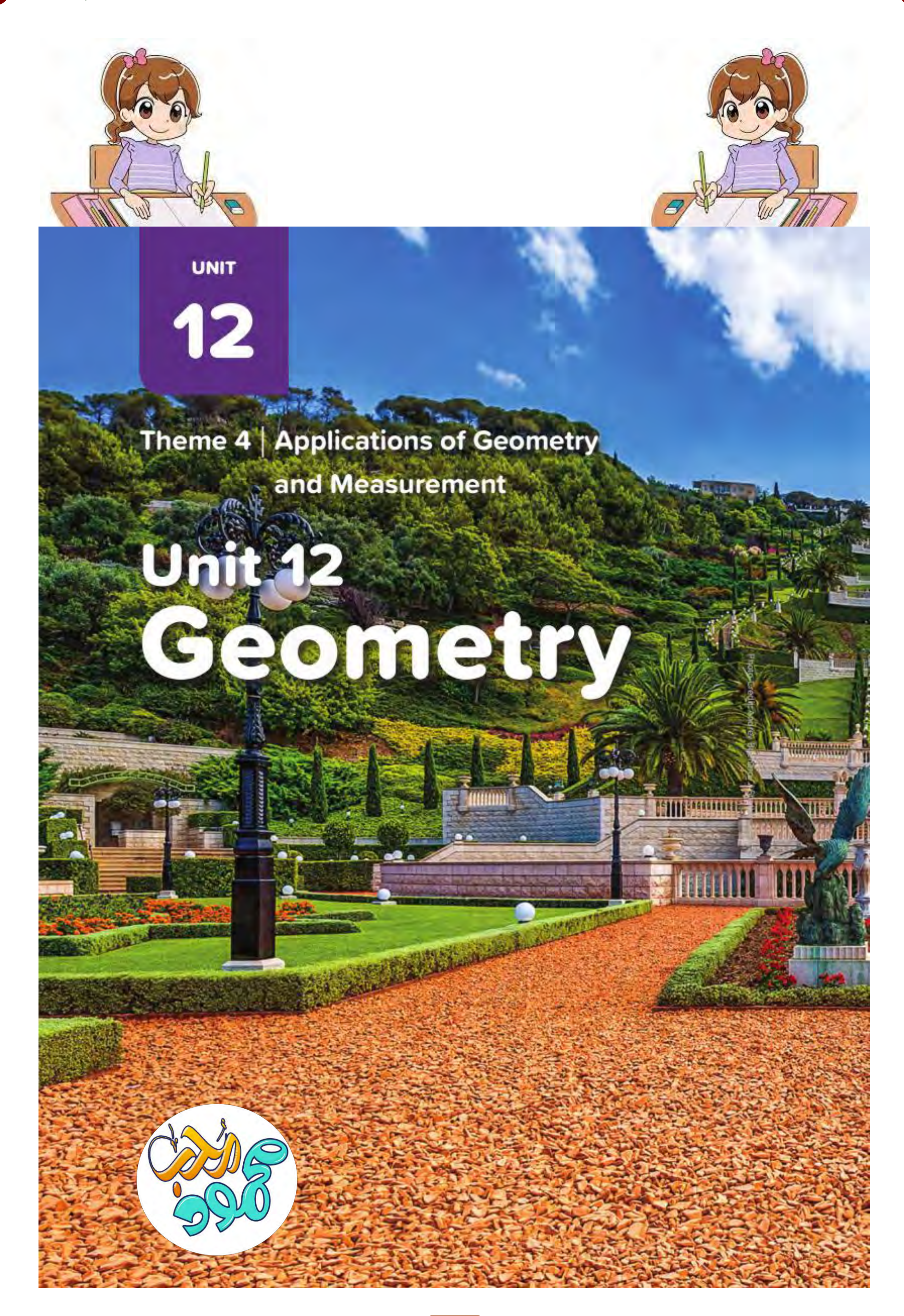
b. The following data shows the number of study hours in a week by Eslam and Mina.
Represent these data by a double bar graph.

Days / Name	Sat.	Sun.	Mon.	Tue.	Wed.	Thu.	Fri.
Eslam	3	4	$5\frac{1}{2}$	5	3	5	$3\frac{1}{2}$
Mina	$3\frac{1}{2}$	3	5	6	$4\frac{1}{2}$	$6\frac{1}{2}$	2








UNIT
12
Theme 4 | Applications of Geometry and Measurement
Unit 12
Geometry

Concept (1): Geometric Concepts

Polygons

The Polygon	Name	Number of sides	Number of vertices
	Triangle		
	Quadrilateral		
	Pentagon		
	Hexagon		
	Heptagon		
	Octagon		
	Nonagon		
	Decagon		

Note: For any polygon:

Number of sides = Number of vertices





Lesson (1) Points, Lines, Line Segments, and Rays

Match:

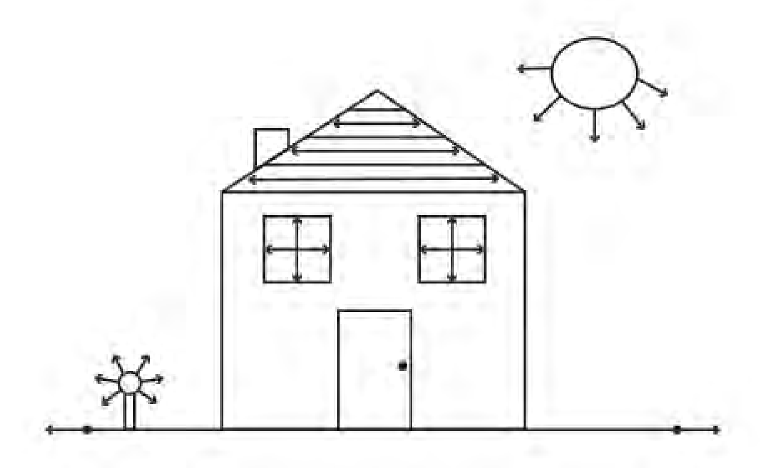
B C	line YZ	$\overleftrightarrow{YZ}$
C B	line segment BC	$\overline{BC}$
Z Y	line BC	$\overleftrightarrow{BC}$
Y Z	ray BC	$\overrightarrow{BC}$
Y Z	line segment YZ	$\overline{YZ}$
C B	ray YZ	$\overrightarrow{YZ}$





House of Rays, Line Segments, and Lines Look at the picture that follows.

- Trace any lines you see in green.
- Trace any rays you see in orange.
- Trace any line segments you see in blue.

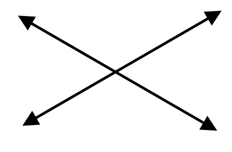




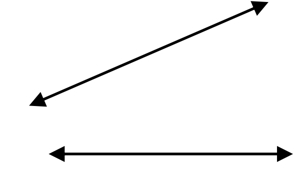
Lesson (2) The Relation between Two Lines

Perpendicular Lines (Orthogonal lines)	Parallel Lines	Intersecting Lines
A, B, C, D 1. Intersect at 1 point. 2. $\overleftrightarrow{AB} \perp \overleftrightarrow{CD}$ or $\overleftrightarrow{CD} \perp \overleftrightarrow{AB}$.	A, B, C, D 1. $\overleftrightarrow{AB} // \overleftrightarrow{CD}$ or $\overleftrightarrow{CD} // \overleftrightarrow{AB}$. 2. Intersect at 0 points 3. Never intersecting.	M 1. Intersect at 1 point. 2. M is the intersection point

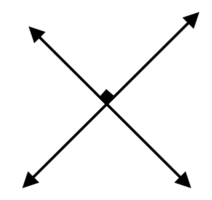
Write (parallel, perpendicular or intersecting) to describe each two straight lines:



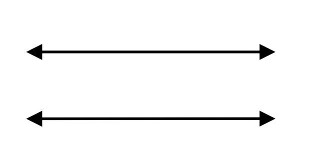
……………………………………



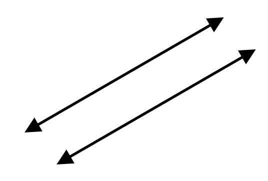
……………………………………



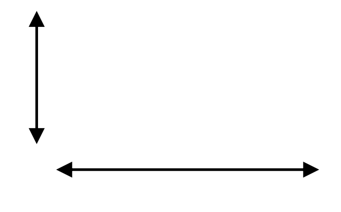
……………………………………



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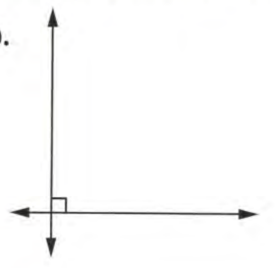
……………………………………

Write the name of each pair of lines "parallel, intersecting or perpendicular".

a.



b.



c.





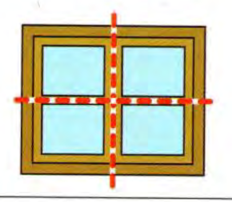
Choose the name for each pair of lines.

a.



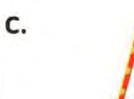
Parallel
Intersecting

b.



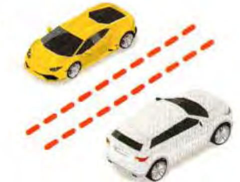
Parallel
Perpendicular

c.



Intersecting
Perpendicular

d.



Parallel
Intersecting





2. What is the name of this object?



A. Point

B. Line

C. Line segment

D. Ray

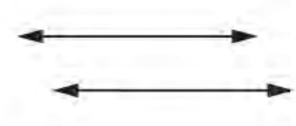


3. Which of these show intersecting lines? Select *two* correct answers.

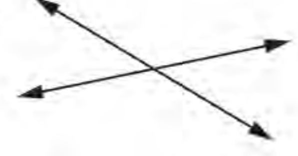
A.



B.



C.



D.



E.





Homework

Draw a line to match the name to the picture. Some pictures do not have a match. Label pictures that do not have a match (for example, line segment ST or TS).

$\overleftrightarrow{LM}$

$\overrightarrow{LM}$

$\overline{LM}$

$\overrightarrow{QR}$

$\overleftrightarrow{QR}$

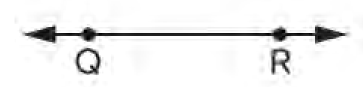
$\overline{QR}$



















Choose the correct answer:

1. The opposite figure is named as ______



A. $\overrightarrow{AB}$ B. $\overrightarrow{BA}$
C. $\overline{AB}$ D. $\overleftrightarrow{BA}$

2. The name of ⟶ is ______

A. a line. B. an angle.
C. a ray. D. a straight.

3. A/An ______ is a part of a line and has two endpoints. ______

A. A point B. A line segment
C. An angle D. A straight line

4. The shape that shows a ray is ______

A. B. C. D.

5. The opposite lines are ______

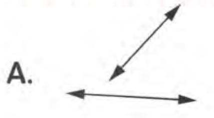


A. perpendicular. B. intersecting.
C. parallel. D. obtuse.

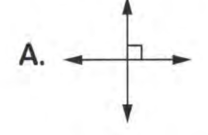
6. The opposite two lines are ______

A. perpendicular.
B. parallel.
C. intersecting and not perpendicular.
D. not intersecting.

7. Which of the following figures shows two parallel lines ?

A.  B.
C. D.

8. Which of the following figures shows two perpendicular lines ?

A.  B. 
C. D.

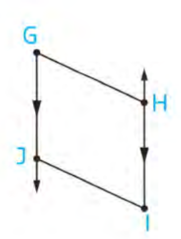
9. The opposite figure is named as ______



A. $\overrightarrow{AB}$ B. $\overline{AB}$
C. $\overleftrightarrow{AB}$ D. $\overleftrightarrow{BA}$

10. In the opposite figure :

The pair of parallel line segments are ______



A. $\overline{GH}$ and $\overrightarrow{GJ}$
B. $\overline{GJ}$ and $\overline{IH}$
C. $\overrightarrow{IH}$ and $\overline{HG}$
D. $\overline{IJ}$ and $\overrightarrow{GJ}$



Complete:

a. The two lines ⫽ are ________

b. The two lines ⊥ are ________

c. The two perpendicular straight lines make ________ square corners.

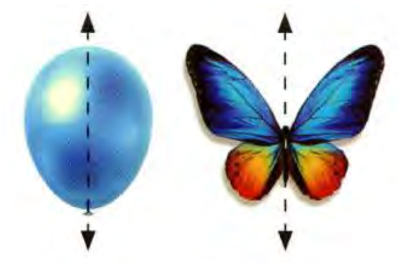
d. The two ________ lines cannot intersecting.

e. All perpendicular lines are also ________

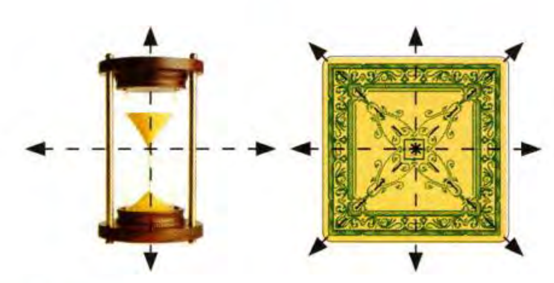


Lesson (3) Symmetry

• These figures appear to have a line of symmetry.



• Some figures appear to have more than one line of symmetry.



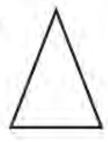


Does each figure appear to have a line of symmetry ? Write yes or no.

a.  b.  c.  d. 

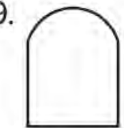


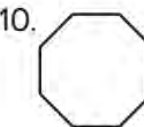
For Problems 6–10, look at each shape. Draw one line of symmetry for each one. (Hint: One shape has more than one line of symmetry.)

6. 

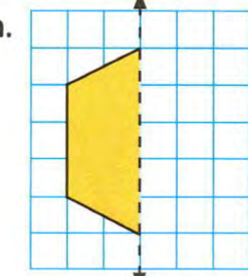
7. 

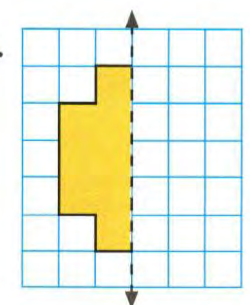
8. 

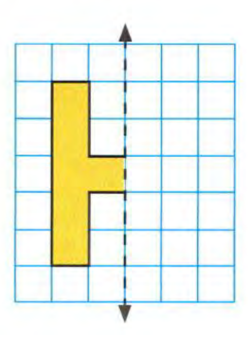
9. 

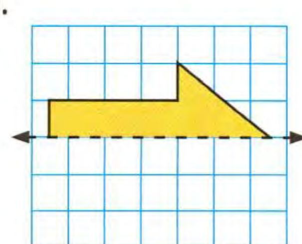
10. 

Use the drawn line of symmetry to draw the other half.

a. 

b. 

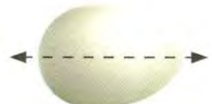
c. 

d. 

Does each line appear to be a line of symmetry ? Write yes or no.

a. 

b. 

c. 

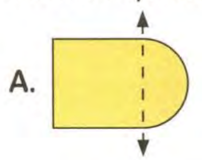
d. 

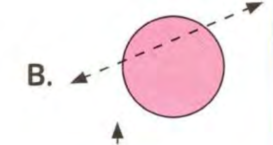


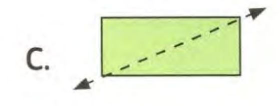
Homework

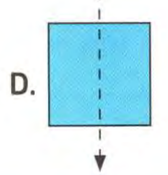
Choose the correct answer:

1. Which of the following shows a line of symmetry ?

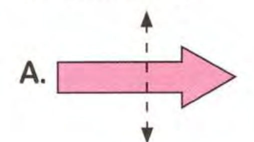
A. 

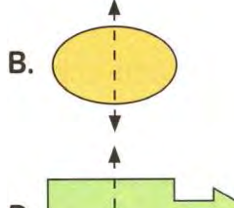
B. 

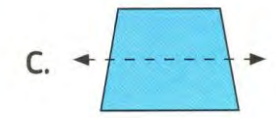
C. 

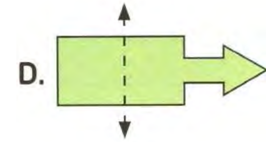
D. 

2. Which of the following figures shows a line of symmetry ?

A. 

B. 

C. 

D. 

3. The number of lines of symmetry that can be drawn in the opposite figure is ______ 

A. 4 B. 3

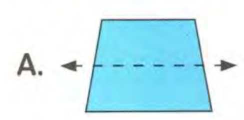
C. 1 D. 2

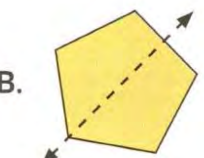
4. [parallelogram] has ______ line(s) of symmetry.

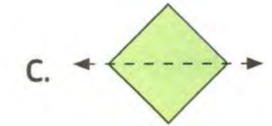
A. 2 B. 0

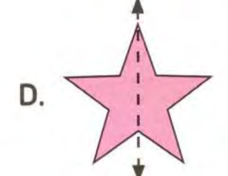
C. 4 D. 1

5. All the following figures show a line of symmetry except ______

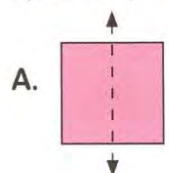
A. 

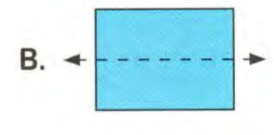
B. 

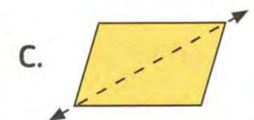
C. 

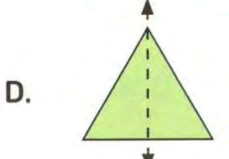
D. 

6. All the following figures show a line of symmetry except ______

A. 

B. 

C. 

D. 

7. All the following figures has a line of symmetry except ______ has more than one line of symmetry.

A. 

B. 

C. 

D. 

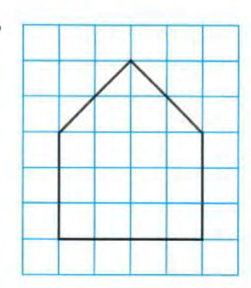
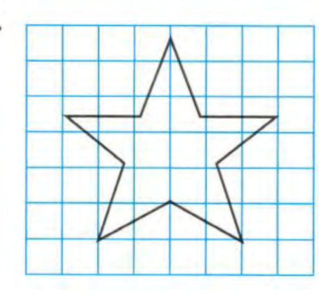
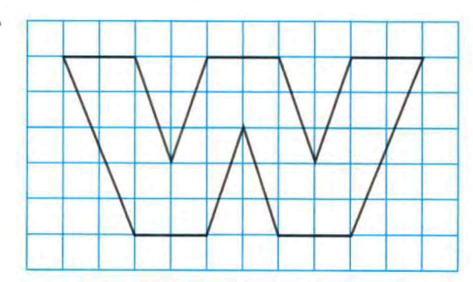


1. Does each figure appear to have a line of symmetry ? Write yes or no.

a.  b.  c.  d. 

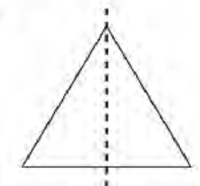
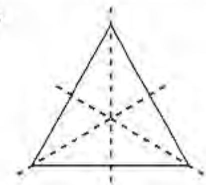
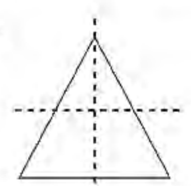
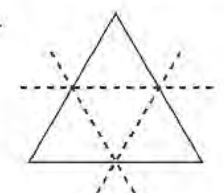


2. Draw a line of symmetry for each.

a.  b.  c. 

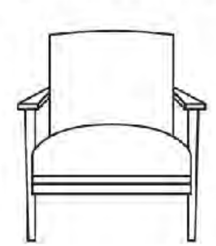
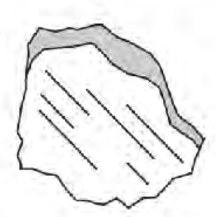


Select the answer choice that shows all the lines of symmetry in the figure.

A.  B.  C.  D. 



Which objects are symmetrical? Select *three* correct answers.

A.  B.  C.  D.  E. 



Lesson (4) Real-World Geometry

Look at the following picture of the park and then follow the directions.

a. Color two perpendicular lines blue.

b. What shape are the restrooms ?

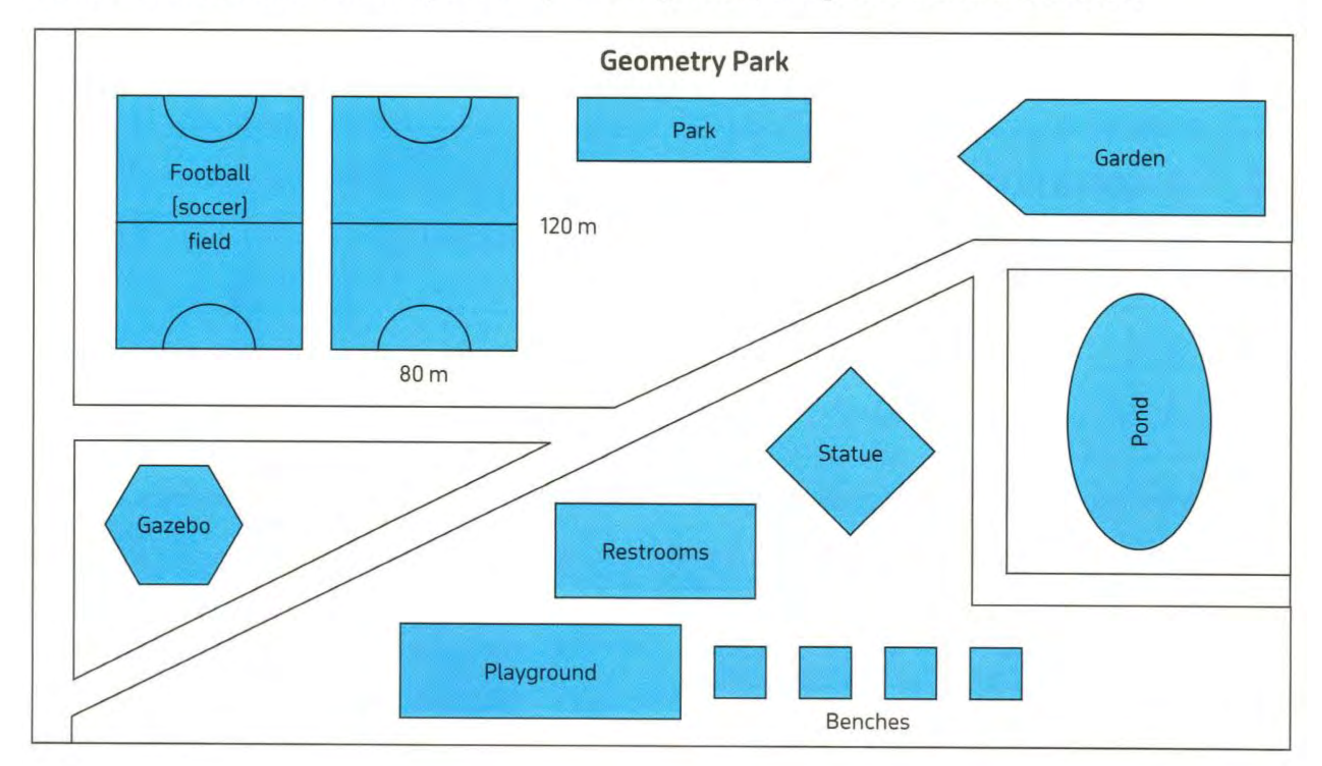
c. Color two parallel lines green.

d. How many quadrilaterals are in the park ?

e. Color two intersecting lines red.

f. Circle and label three different two-dimensional shapes.

g. Draw at least one line of symmetry on the garden, the gazebo and the statue.

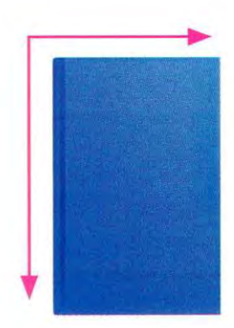
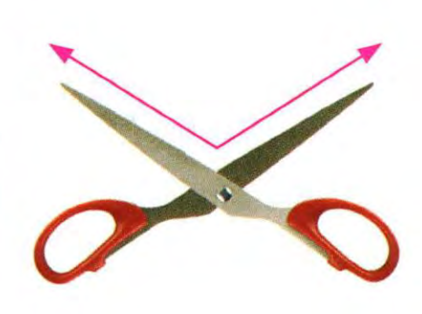




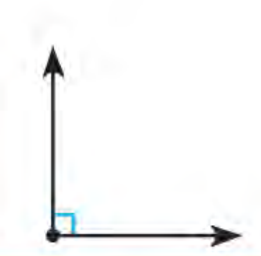
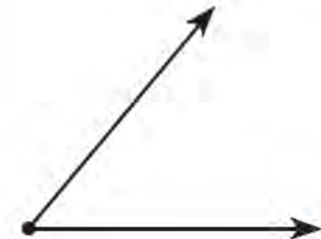


Concept (2): Classifying Shapes

Lesson (5) Classifying Angles

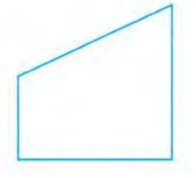
Right angle	Acute angle	Obtuse angle
		

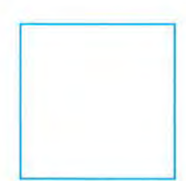


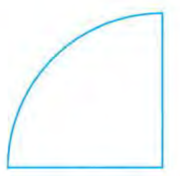
A **right angle** forms a square corner.	An **acute angle** is less than a right angle.	An **obtuse angle** is greater than a right angle and less than a straight angle.
		

Circle all the right angles in the following figures.

a. 

b. 

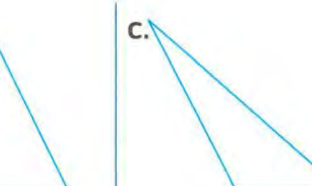
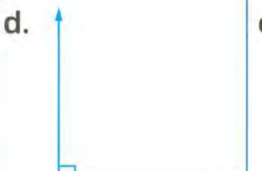
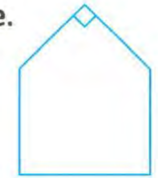
c. 

d. 



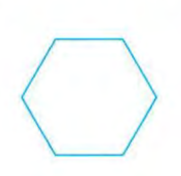
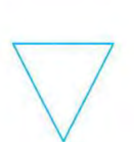


Circle the acute angles "less than right angle" in each of the following figures.

a.  b. c.  d.  e. 



Circle the geometric figure that contains an acute angle.

a.  b.  c.  d.  e. 



Circle the geometric figure that contains an obtuse angle.

a.  b.  c.  d.  e. 



Lesson (6) Drawing Angles

Draw and label a right angle, an acute angle and an obtuse angle.

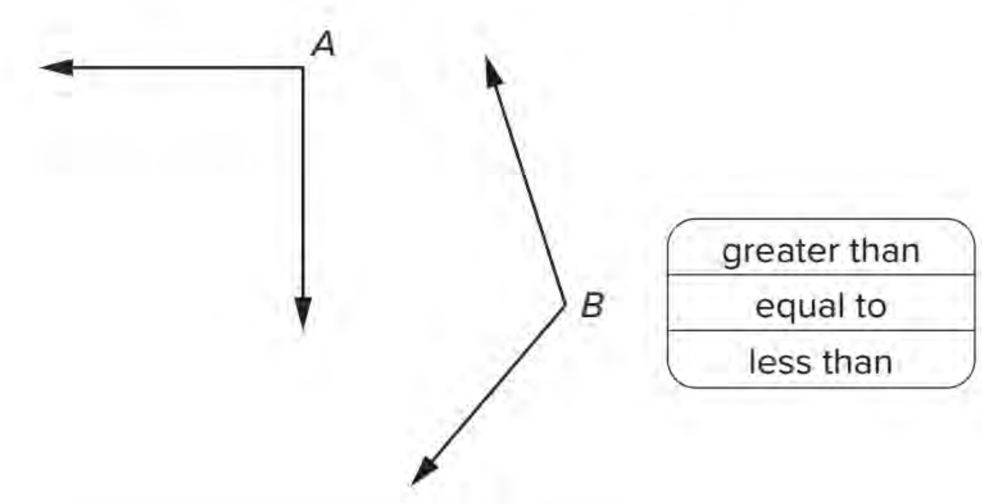






Homework

Fill in the blanks below with the correct answer choice from each group.
Angle *A* is a right angle. Is angle *B* greater than, equal to, or less than a right angle?



Angle *B* is ______________________ a right angle.



What type of angle is angle D?



A. acute

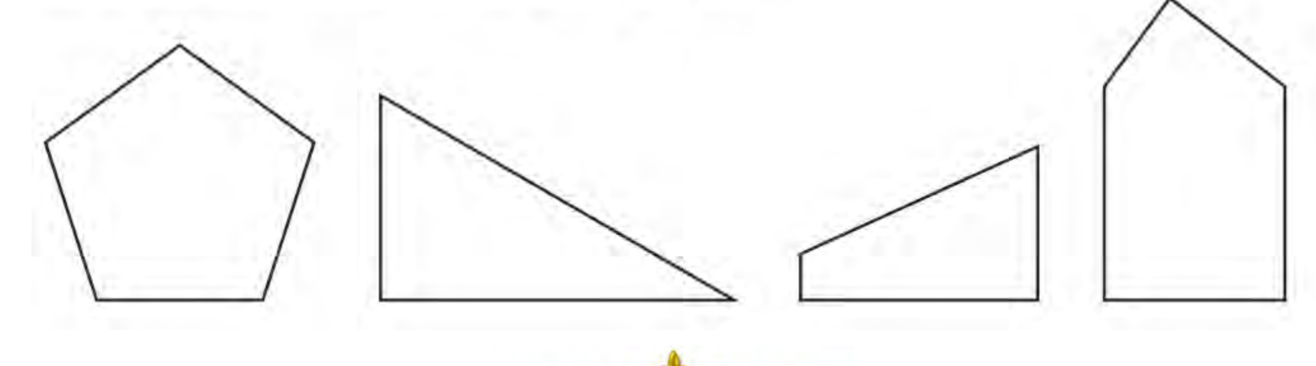
B. right

C. obtuse

D. straight

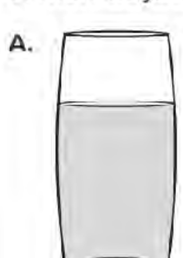


Circle the shapes that contain acute angles.



Which object has a right angle?

A.



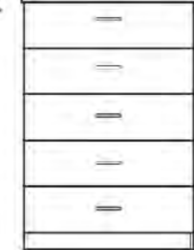
B.



C.



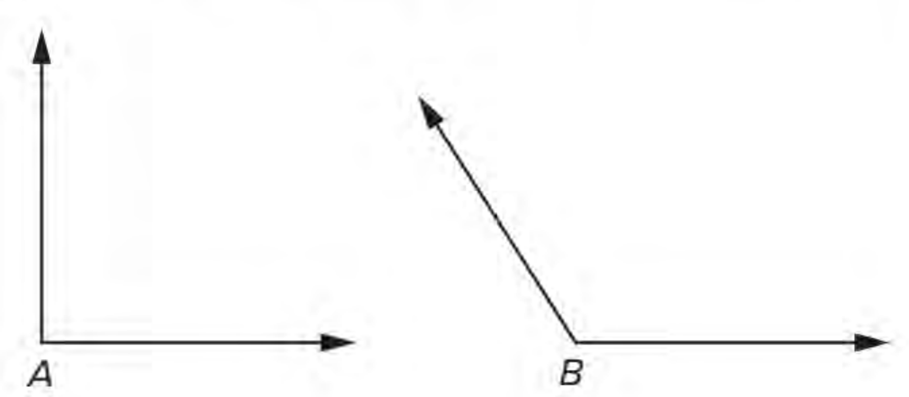
D.





Fill in the blank below with the correct answer choice.

Angle *A* is a right angle. Is angle *B* greater than, equal to, or less than a right angle?



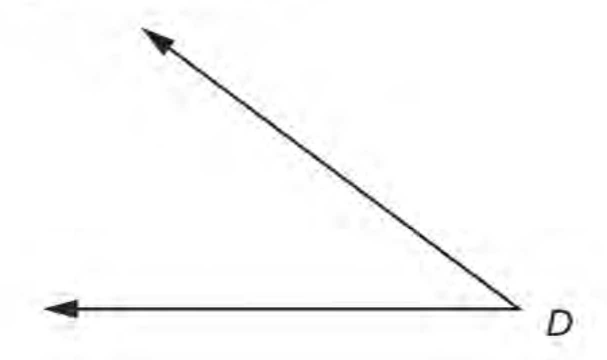
Angle *B* is ______________________________ a right angle.

greater than	equal to	less than





Fill in the blank below with the correct answer choice.
What type of angle is angle *D*?



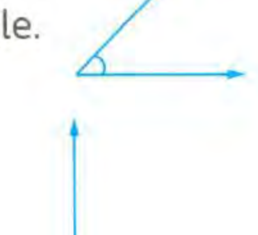
Angle *D* is a(an) ________________ angle.

right	obtuse	acute



Complete:

a. The opposite angle represents ________ angle.



b. The opposite angle is ________ angle.

c. The opposite angle is ________ angle.



d. An ________ angle less than a right angle.

e. An ________ angle more than a right angle.

f. How many acute angles are there in the figure ?





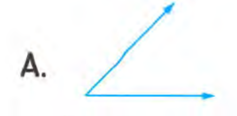
Choose the correct answer:

1. ________ is formed by two rays that share an endpoint.

A. A point B. A line segment

C. An angle D. A ray

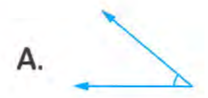
2. From the following, the acute angle is figure ________

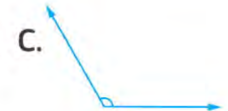


A. B.

C. D.

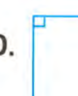
3. Which figure shows a right angle ?

A.  B.

C.  D.

4. The figure that shows an obtuse angle is ________

A.  B.

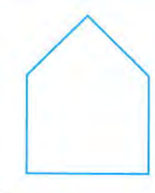
C. D. 

5. The opposite figure is represents ________ angle.

A. an acute B. an obtuse

C. a right D. a straight

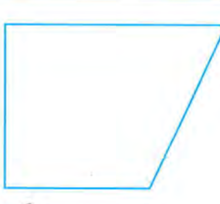
6. The number of the right angles in the opposite figure is ________



A. 1 B. 2

C. 3 D. 4

7. How many obtuse angles are there in the opposite figure ?



A. 0 B. 1

C. 2 D. 3

8. The measure of the acute angle ◯ the measure of the right angle.

A. > B. < C. =

9. The measure of the acute angle ◯ the measure of the obtuse angle.

A. < B. >

C. = B. otherwise

10. Which angle that is smaller than the right angle ?

A. an acute angle. B. a right angle.

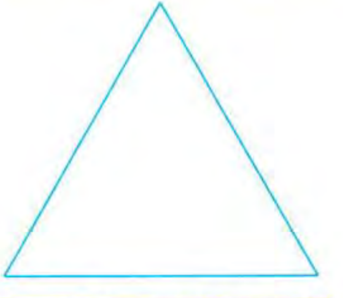
C. an obtuse angle. D. a straight line.





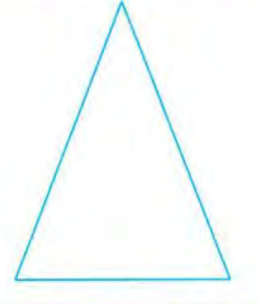
Lesson (7) Classifying Triangles

Triangles can be classified by the lengths of their sides.



Equilateral triangle

All sides are the same length.



Isosceles triangle

At least two sides are the same length.

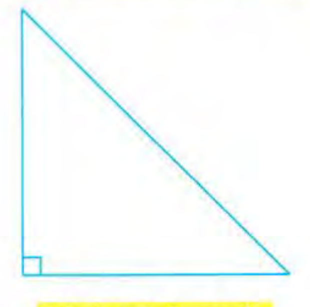


Scalene triangle

No sides are the same length.

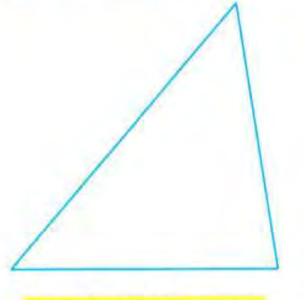


You can also classify triangles by the sizes of their angles.



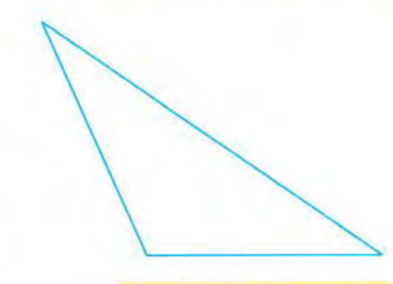
Right triangle

One angle is a right angle and the other two angles are acute.



Acute triangle

All three angles are acute angles.



Obtuse triangle

One angle is an obtuse angle and the other two angles are acute.

Note: The sum of the measures of the interior angles of any triangle = 180°.

Remarks

(1) Any triangle has at least two acute angles.

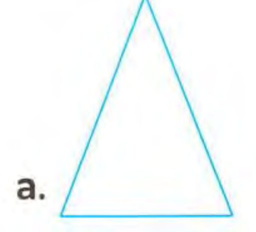
(2) We can't find two right angles in one triangle.

(3) We can't find two obtuse angles in one triangle.



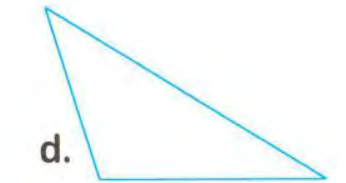


Name each triangle. Write right, obtuse or acute.

a. 

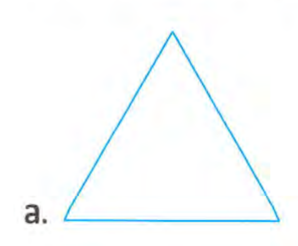
b.

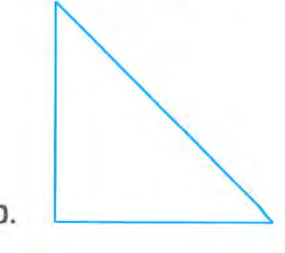
c. 

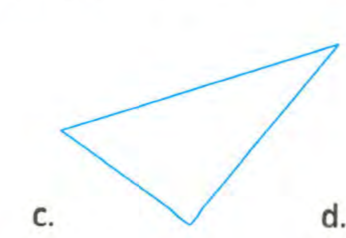
d. 

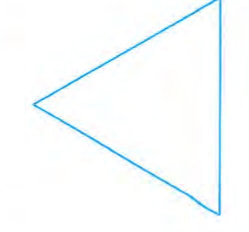


Name each triangle. Write equilateral, isosceles or scalene.

a. 

b. 

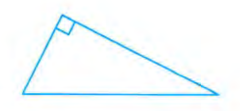
c. 

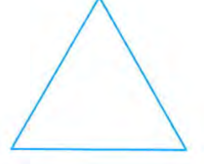
d. 



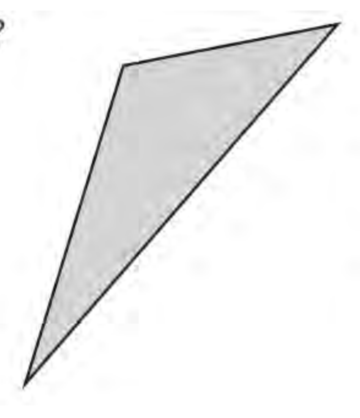
Classify each triangle by its sides and then by its angles.

a. 

b.  

c.  

What type of triangle is shown?



A. Right triangle

B. Acute triangle

C. Obtuse triangle

D. Equiangular triangle

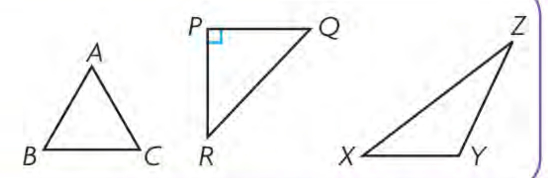




a. Name the triangle with one right angle. ______

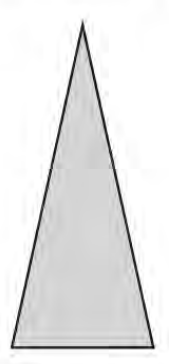
b. Name the triangle with one obtuse angle. ______

c. Name the triangle with three acute angles. ______





Fill in the blanks below with the correct answer choice from each group.
What type of triangle is shown? Explain how you know.



A.

scalene
isosceles
equilateral

B.

0
3
2

The triangle is **A.** ______________________ because it has

B. __________ sides that are the same length.



Classify each triangle as equilateral, iscosceles or scalene.

a. 

b. 

c. 

d. 

e. 

f. 





Lesson (8) Drawing Triangles

Building Triangles Work with your partner to use straws to create the triangles. Draw your triangles in the space provided.

1. Build an equilateral triangle.

2. Build a triangle with all acute angles.

3. Build a triangle with an obtuse angle.

4. Build a scalene triangle.

5. Build a right triangle.



6. Build an isosceles triangle.

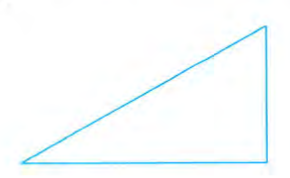
7. Build an isosceles triangle with a right angle.

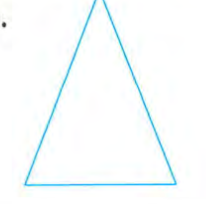
8. Build a scalene triangle with an obtuse angle.

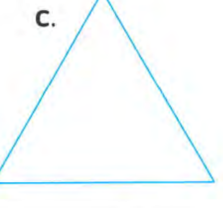


Homework

1. Classify each triangle as equilateral, isosceles or scalene.

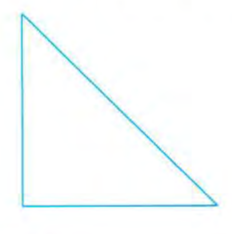
a.


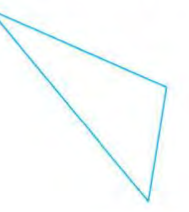
b.


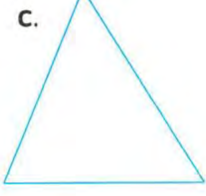
c.




2. Classify each triangle as acute, right, or obtuse.

a.


b.


c.






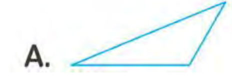
Choose the correct answer:

1. The triangle [triangle] is ________ triangle.
   A. acute B. right
   C. obtuse

2. The opposite triangle is ________ angled triangle.
   A. an acute B. an obtuse
   C. a right D. an equilateral

3. The opposite triangle is ________ triangle.
   A. a right B. an acute
   C. an obtuse D. an equilateral

4. The opposite triangle is ________ triangle.
   A. right B. acute
   C. obtuse D. scalene

5. Which of the following triangles is isosceles triangle ?
   A.  B. 
   C. D. 

6. The equilateral triangle has ________ equal side(s).
   A. 0 B. 1
   C. 2 D. 3

7. The isosceles triangle has ________ equal side(s).
   A. 0 B. 1
   C. 2 D. 3

8. The scalene triangle has ________ equal side(s).
   A. 0 B. 1
   C. 2 D. 3

9. The triangle has different sides is called ________
   A. isosceles B. scalene
   C. equilateral D. otherwise

10. ________ triangle has 3 equal sides.
    A. Scalene B. Isosceles
    C. Equilateral D. Right

11. The opposite triangle has ________ right angle(s).
    A. 1 B. 2
    C. 3 D. 4

12. The triangle of side length of 5 cm , 6 cm , 7 cm is called ________ triangle.
    A. equilateral B. isosceles
    C. scalene D. otherwise

13. Any triangle has at least ________ acute angle(s).
    A. 3 B. 1
    C. 2 D. 4

14. The classification of the opposite triangle by its sides and angles is ________ triangle.
    A. equilateral, right B. isosceles, acute
    C. scalene, right D. equilateral, acute





Lesson (9) Classifying Quadrilaterals

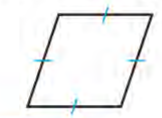
Common Quadrilaterals



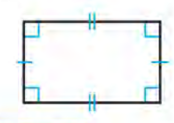

Trapezoid
- 1 pair of parallel sides



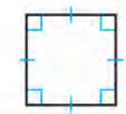

Parallelogram
- 2 pairs of parallel sides
- 2 pairs of sides of equal length



Rhombus
- 2 pairs of parallel sides
- 4 sides of equal length



Rectangle
- 2 pairs of parallel sides
- 2 pairs of sides of equal length
- 4 right angles



Square
- 2 pairs of parallel sides
- 4 sides of equal length
- 4 right angles



Write the name that best describes each figure.

a. ____________

b. ____________

c. ____________

d. ____________

e. ____________

f. ____________



Naming Quadrilaterals Write the name of each quadrilateral. Count how many pairs of parallel sides the shape has and classify the angles. Draw at least one example of each quadrilateral using the dot grid.

1.

Name: ____________

Parallel Sides: ____________

Angles: ____________





2.



Name: ______________________________

Parallel Sides: ______________________________

Angles: ______________________________



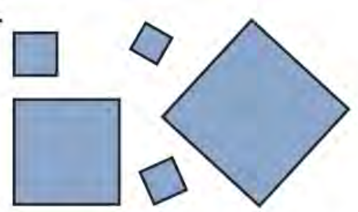
3.

Name: ______________________________

Parallel Sides: ______________________________

Angles: ______________________________

4.



Name: ______________________________

Parallel Sides: ______________________________

Angles: ______________________________





5.

Name: ______________________

Parallel Sides: ______________________

Angles: ______________________



Complete:

a. The square has ________ right angles.

b. The rectangle has ________ right angles.

c. The ________ has only one pair of a parallel sides.

d. The quadrilateral that has 4 equal sides and 4 right angles is called ________ .

e. A ________ is a rectangle with 4 equal sides.

f. A quadrilateral is any polygon with ________ sides.

g. A rhombus is a parallelogram with four equal ________ .

h. A ________ is a parallelogram with four equal sides, two acute angles and two obtuse angles.



Choose the correct answer:

1. The quadrilateral that has equal sides with 4 right angles is a ________
   A. rectangle. B. square.
   C. trapezium. D. rhombus.

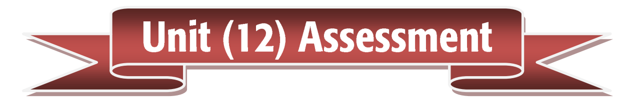
2. A square has ________
   A. 2 acute angles. B. 2 obtuse angles.
   C. 4 right angles.
   D. 4 different angles.

3. A parallelogram has ________
   A. 4 right angles. B. 4 equal sides.
   C. 1 pair of parallel sides.
   D. 2 pairs of parallel sides.

4. The rectangle has ________ right angle[s].
   A. 2 B. 3
   C. 4 D. 1







[1] Choose the correct answer:

1. The opposite figure is named as ________



A. $\overleftrightarrow{AB}$ B. $\overline{AB}$ C. $\overrightarrow{BA}$ D. $\overrightarrow{AB}$

2. ________ is a polygon with six sides.

A. Triangle B. Pentagon C. Hexagon D. Quadrilateral

3. The classification of the opposite triangle, is ________

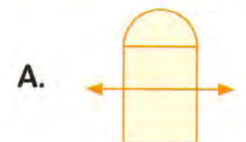
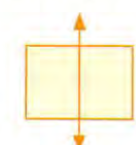


A. isosceles, obtuse B. isosceles, acute
C. equilateral, acute D. scalene, acute

4. A ________ is a parallelogram with all sides are the same length.

A. parallelogram B. rectangle C. trapezium D. rhombus

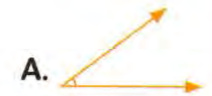
5. Which of the following figures shows a line of symmetry?

A.  B.  C.  D. 

6. The opposite lines show ________

A. parallel lines B. intersecting lines
C. perpendicular lines D. not intersecting lines

7. Which figure shows a right angle?

A.  B.  C.  D.



[2] Complete:

1.  is named as ....

2. How many right angles are there in the opposite figure ?



3. Number of lines of symmetry of the figure = ...



4. The two lines that will never intersect are called ....

5. .... is formed by two rays that have the same endpoint.

6. The .... angle is smaller than a right angle.

7. The .... triangle has only two equal sides.

8. The square has .... right angles.

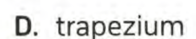


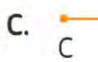
[3] Choose the correct answer:

1. A .... has a vary measuring angles with only one pair of parallel sides.

   A. parallelogram B. rhombus C. square D. trapezium

2. Which of the following figures shows $\overrightarrow{CD}$?



   A.  B.   C.  D. 

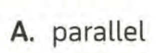
3. The equilaterlal triangle has .... equal side(s).

   A. 0 B. 1 C. 2 D. 3

4. The opposite two lines are ....

   A. parallel B. not intersecting
   C. perpendicular D. intersecting and not perpendicular

5. The number of the right angles in the opposite figure is ....





   A. 1 B. 2 C. 3 D. 4

6. The number of equal sides in the scalene acute triangle is ....

   A. 0 B. 1 C. 2 D. 3

7. A parallelogram has ....

   A. 4 equal sides B. 4 right angles
   C. 1 pair of parallel sides D. 2 pairs of parallel sides

[4] Answer the following:

1. Hany is making a design using a quadrilateral that has four equal sides and four same-sized angles. What shape is Hany using ? Draw the design. ....



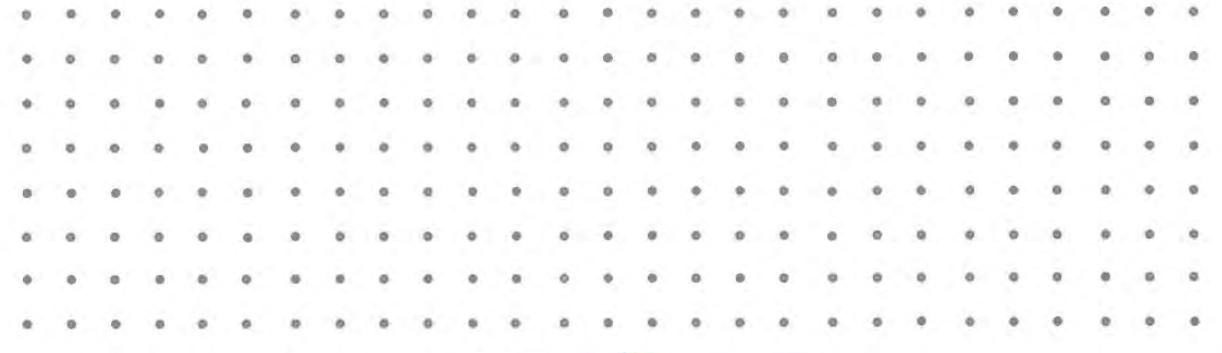
2. a. The type of the opposite triangle according to its angles is ....

   b. The perimeter of triangle = ... cm.

3. **Draw $\overleftrightarrow{LM}$ is perpendicular to $\overleftrightarrow{AB}$.**



4. **a. Draw an obtuse angle.** **b. Draw a right angle.**











UNIT 13

Theme 4 | Applications of Geometry and Measurement

Unit 13 Angles of a Circle

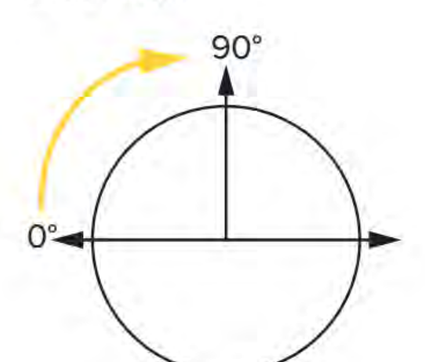


Concept (1)
Breaking the Circle into Angles

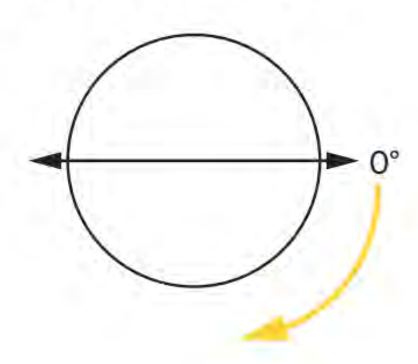
Lesson (1) The Circle and the Degrees

Circles and Angles Move from 0° in the given direction and draw a right angle. Then, label 90° and 180° degrees on each circle. Compare your work with your Shoulder Partner's work.

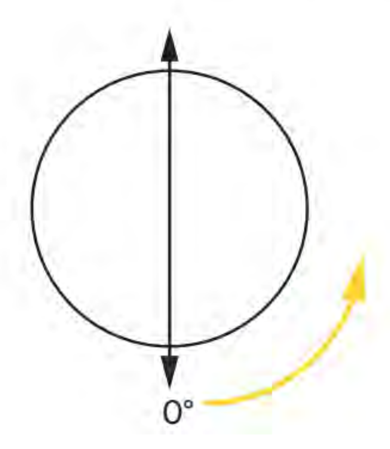
1. Label 180°.



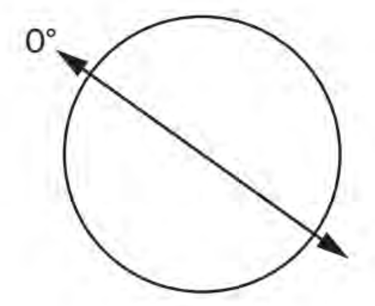
2. Move clockwise from 0°.



3. Move counterclockwise from 0°.



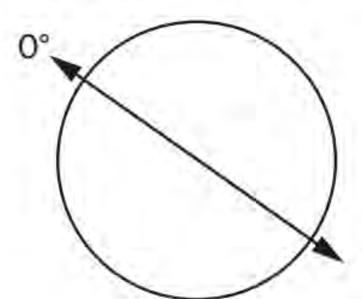
4. Move clockwise from 0°.



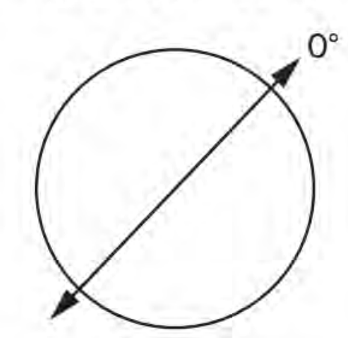




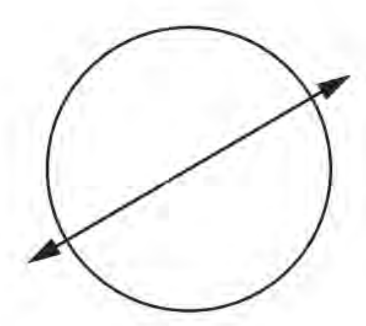
5. Move counterclockwise from 0°.



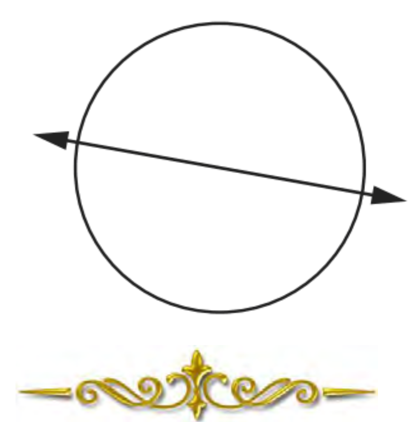
6. Move clockwise from 0°.



1. Draw an acute angle. An acute angle measures between ________ and ________ degrees.



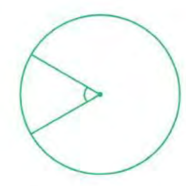
2. Draw an obtuse angle. An obtuse angle measures between ________ and ________ degrees.

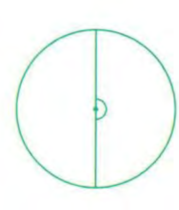


Classify each marked angle of the following.

a. 

b. 

c. 

d. 

e. 

f. 



Lesson (2) Measuring Angles Using a Circle Model



- The model at the right has been divided into 12 equal angles. As the measure of the circle is 360°, then the measure of each angle equals $\frac{1}{12}$ of the circle





- The measure of one angle = $\frac{1}{12} \times 360°$

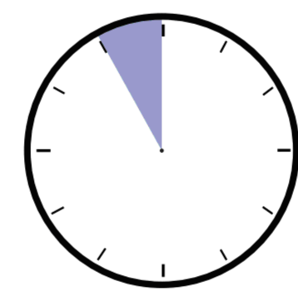
  $= 360° \div 12 = 30°$



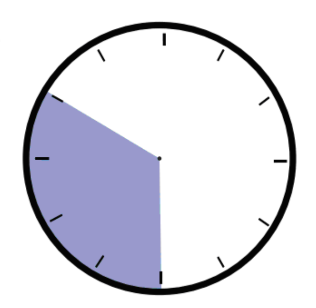


Fractions and Angles on a Clock Write the fraction of the clock shaded and how many degrees of the clock that fraction represents.

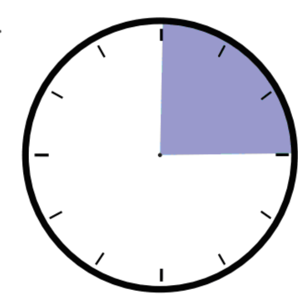
1.



2.



3.



Use the blank clock faces and what you know about benchmark angles to write the missing angle measurements.

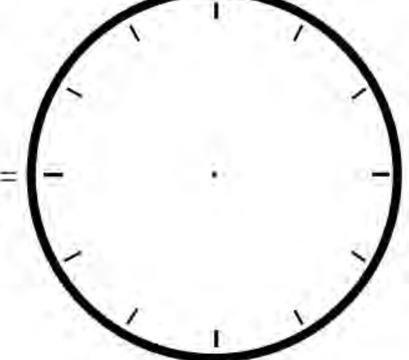
4. $\frac{2}{12}$ =

5. $\frac{3}{4}$ =

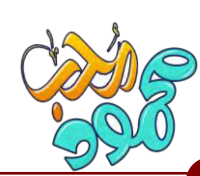


6. $\frac{2}{3}$ =

7. $\frac{6}{12}$ =

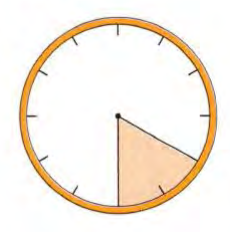


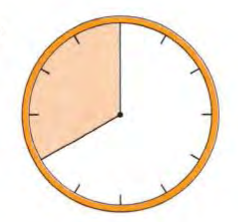


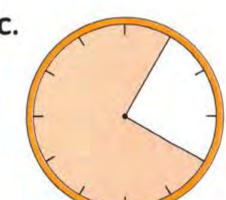


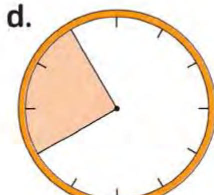
Homework

Write the fraction of the model colored and how many degrees of the model that fraction represents.

a. 

b. 

c. 

d. 

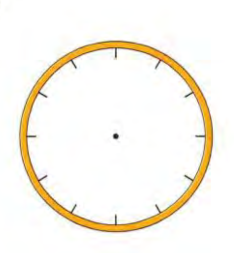
Use the blank model and what you know about benchmark angles to write the missing angle measurements in degrees.

a. $\frac{6}{12}$



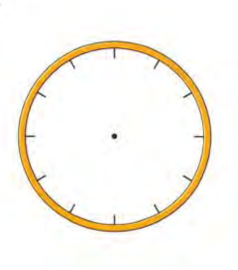
____

b. $\frac{1}{6}$



____

c. $\frac{3}{4}$

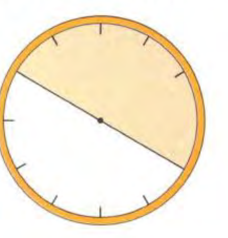


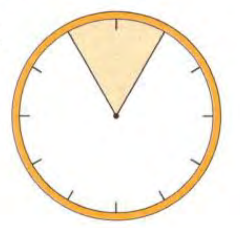
____

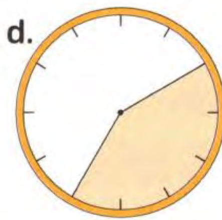


Write the measure of colored angles in degrees.

a. 

b. 

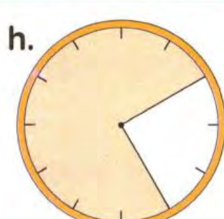
c. 

d. 

e. 

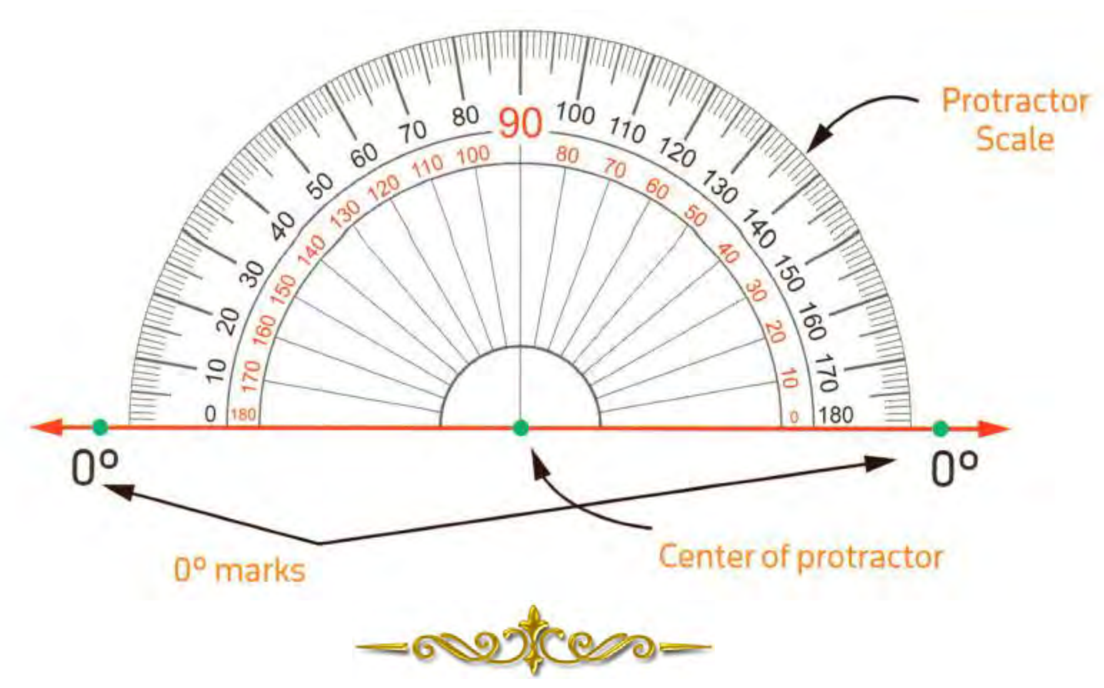
f. 

g. 

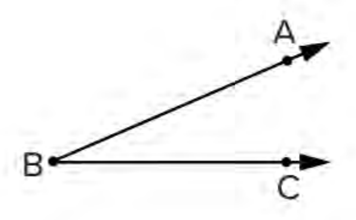
h. 

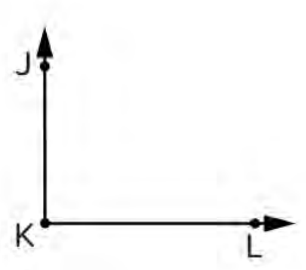
Concept (2)
Measuring and Drawing Angles

Lesson (3) Using Protractor



Write three different names for each angle.





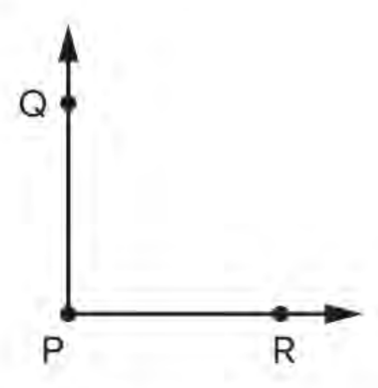
Name 1 ______	Name 1 ______
Name 2 ______	Name 2 ______
Name 3 ______	Name 3 ______





Which *three* choices are acceptable names for the angle shown?

Consider the angle.



A. ∠PQR

B. ∠QPR

C. ∠RPQ

D. ∠P

E. ∠Q

F. ∠R

Lesson (4) — Measuring Angles

Classifying Angles Classify each angle as acute, obtuse, right, or straight.

1.

2. 

3. 

4. 

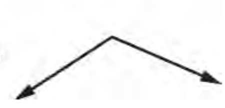
5. 

6.

7. 

8. 

9. 

10. 

Acute: .... , ... , ...

Right: .... , ...

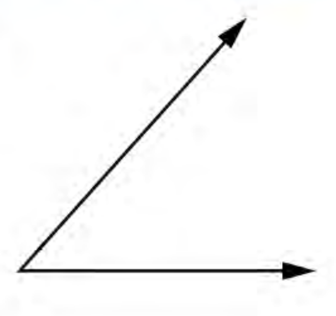
Obtuse: .... , ... , ...

Straight: .... , ...



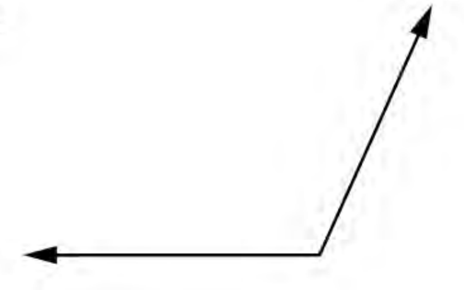
Measurement Practice

1.



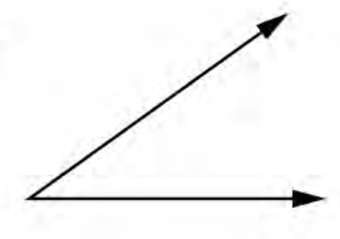
____

2.



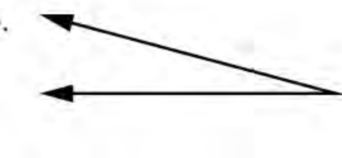
____

3.



____

4.

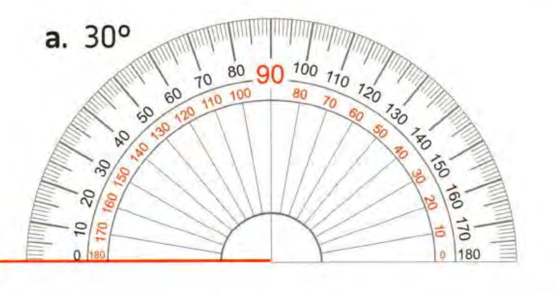


____

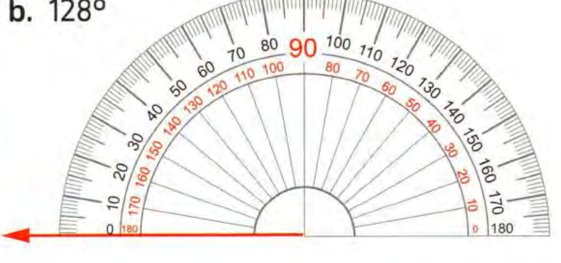
Lesson (5) Drawing Angles

Mark each given angle on the protractor.

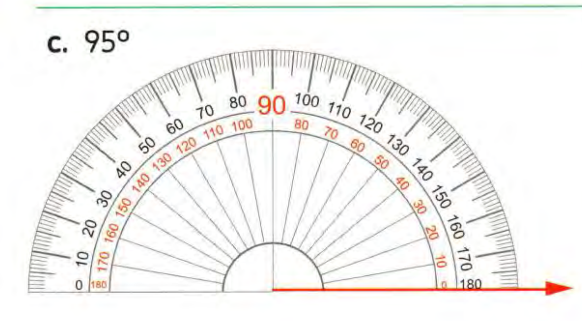
a. 30°



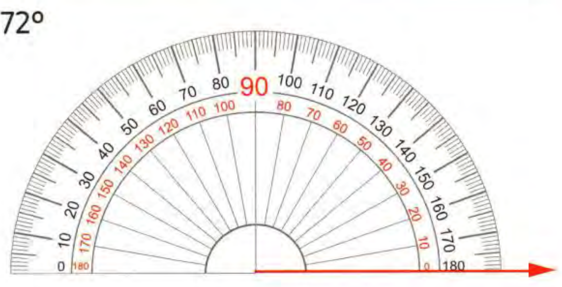
b. 128°



c. 95°



d. 72°



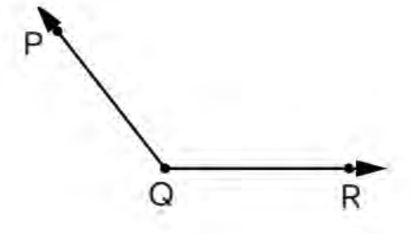




Homework

Write three different names for each angle.

3.

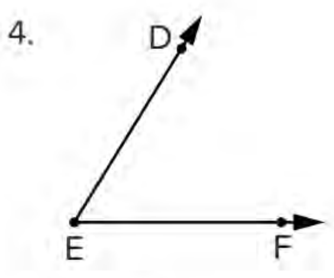


Name 1 ____________________

Name 2 ____________________

Name 3 ____________________

4.

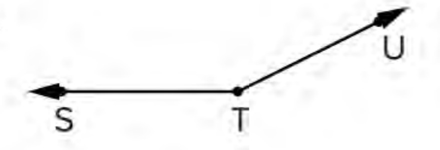


Name 1 ____________________

Name 2 ____________________

Name 3 ____________________

5.

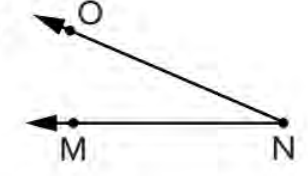


Name 1 ____________________

Name 2 ____________________

Name 3 ____________________

6.



Name 1 ____________________

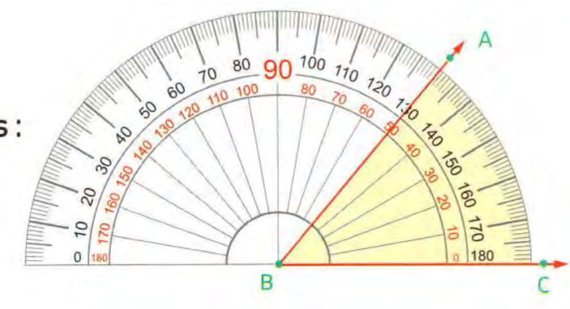
Name 2 ____________________

Name 3 ____________________





Complete:



1. Use the opposite angle to answer the questions :

   a. Its name is ∠ ____________

   b. Its type is : ____________

   c. Its measure = ____________ °

2. In the opposite angle :

   a. Its measure is ____________ °

   b. And type is ____________ angle.

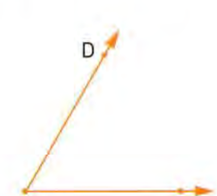
3. In the opposite figure :



   a. Name of the angle : ____________

   b. Angle type : ____________

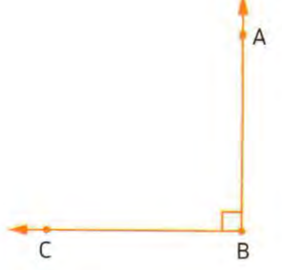
4. a. Name of angle : ∠ ____________



   b. Type : ____________

   c. Measure : ____________ degrees.

5. In the opposite figure :



   a. The name of the angle is ____________

   b. The type of the angle is ____________

   c. The measure of the angle = ____________ °

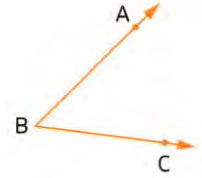


Choose the correct answer:

1. A protractor is an instrument used for measuring ______

A. sides B. angles
C. weight D. capacity

2. The name of the opposite angle is ______



A. ∠ ACB B. ∠ ABC
C. ∠ BAC D. ∠ CBA

3. The vertex of ∠ ABC is ______

A. A B. B
C. C D. otherwise

4. Name the sides of the angle ABC ?

A. $\overrightarrow{AB}$, $\overrightarrow{BC}$ B. $\overrightarrow{BA}$, $\overrightarrow{CB}$
C. $\overrightarrow{AC}$, $\overrightarrow{AB}$ D. $\overrightarrow{BC}$, $\overrightarrow{BA}$

5. One of sides of the angle RHS is ______

A. $\overrightarrow{HR}$ B. $\overrightarrow{RS}$
C. $\overrightarrow{SH}$ D. $\overrightarrow{RH}$

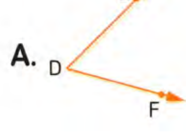
6. What is the possible measure of the opposite angle ?

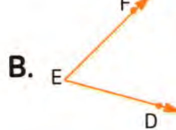
A. 10° B. 85°
C. 90° D. 145°

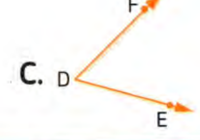
7. The measure of the opposite angle is ______

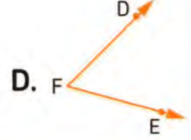
A. 100°
B. 120°
C. 135°
D. 150°

8. Which angle is named as angle DEF ?

A. 

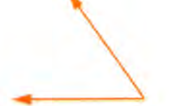
B. 

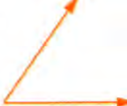
C. 

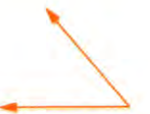
D. 

9. Which angle is measured 50° ?

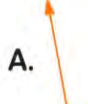
A. 

B. 


C. 

D. 

10. Which angle is measured 125° ?

A. 

B.

C.

D.

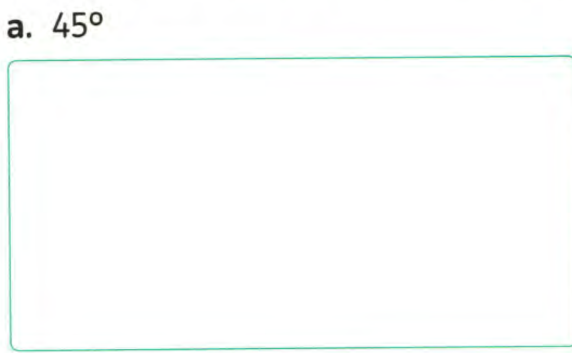




Lesson (6) Drawing Angles Using the Protractor

Use the protractor to draw each of the following angles :

a. 45°



b. 112°



Complete drawing the following angles using the protractor.

a. 20°



b. 105°

c. 55°

d. 135°

e. 85°

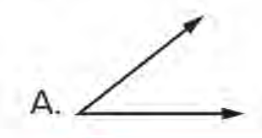
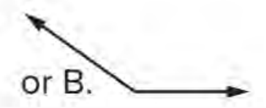
f. 170°



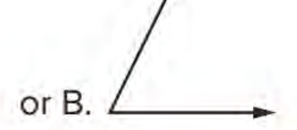


Which Angle Is It? For each angle measurement given, circle the picture of the angle that you think matches that measurement.

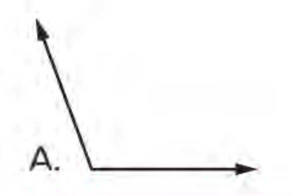
1. 45°

A.  or B. 

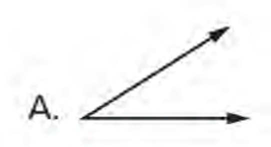
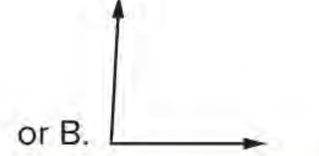
2. 60°

A.  or B. 

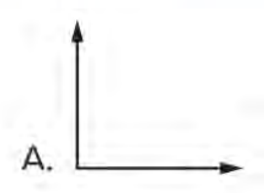
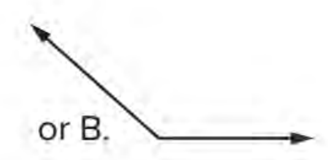
3. 125°

A.  or B.

4. 85°

A.  or B. 

5. 150°

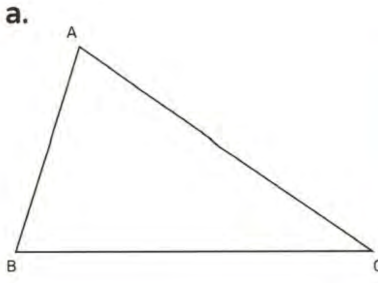
A.  or B. 



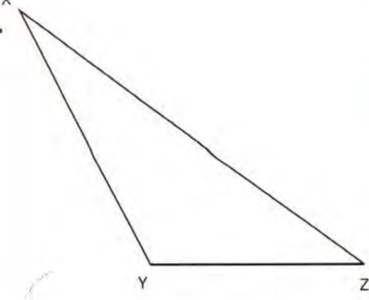
Lesson (7) Classifying Triangles Using Geometric Tools

Use a ruler to measure the side lengths of each of the following triangles, then determine the type of each triangle according to its sides.

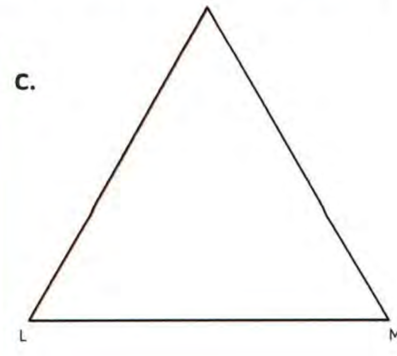
a.



b.



c.

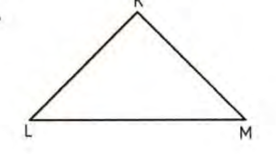


______________ ______________ ______________

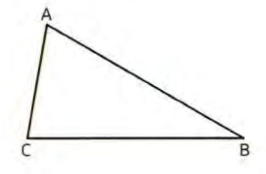


Use a protractor to measure the angles of each of the following triangles, then determine the type of triangle according to its angles.

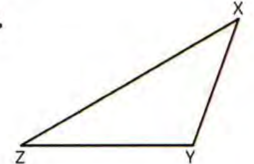
a.



b.



c.

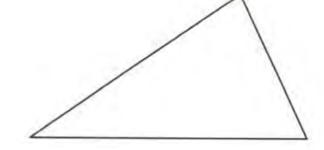


______________ ______________ ______________

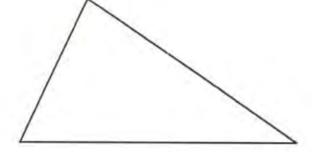


By using your geometric instrument, determine the type of the triangle according to its sides and angles.

a.



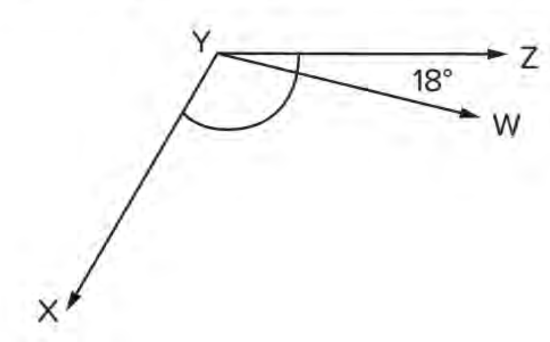
b.



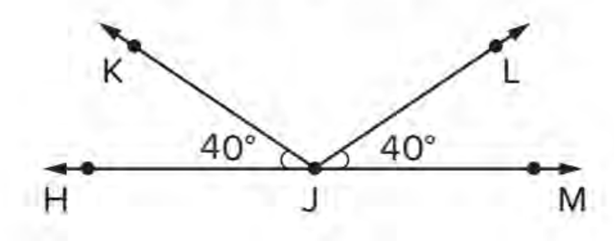


Homework

Angle XYZ measures 117°. What is the measure of Angle XYW?



The figure shows angle HJM. The measure of angle HJM is 180°.
What is the measure, in degrees, of angle KJL?



Use your protractor to draw each angle.

a. 50°

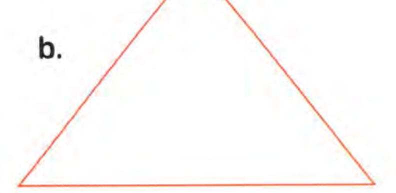
b. 25°

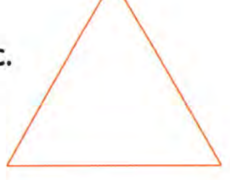
c. 95°

d. 140°

Use a ruler to measure the side lengths of each of the following triangles, then determine the type of each triangle according to its sides.

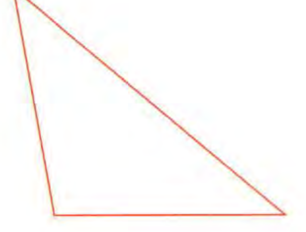
a.


b.


c.




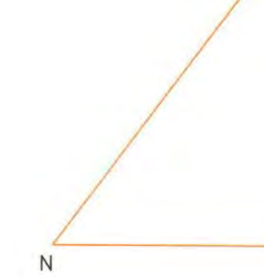
Use a protractor to measure the angles of each of the following triangles, then determine the type of each triangle according to its angles.

a.


b.


c.



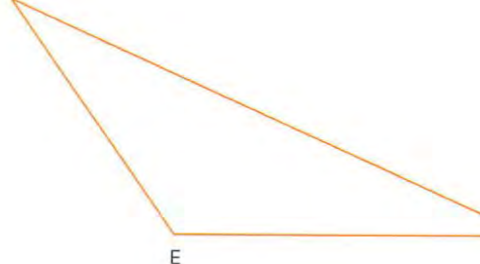


1. Type of Δ MLN according to its sides ____________

2. Type of Δ MLN according to its angles ____________







1. Type of Δ DEF according to its sides ____________

2. Type of Δ DEF according to its angles ____________



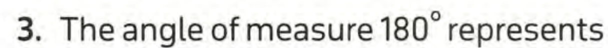


[1] Choose the correct answer:

1. .... angle measures 180°
   A. An acute B. A right
   C. An obtuse D. A straight

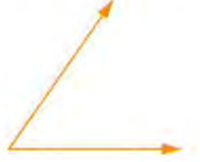
2. The best measure estimation of the opposite angle is ....
   A. 40° B. 90°
   C. 130° D. 170°

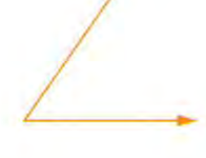
3. The angle of measure 180° represents ....



   A. $\frac{1}{4}$ of a full rotation. B. $\frac{1}{2}$ of a full rotation.
   C. $\frac{1}{3}$ of a full rotation. D. $\frac{3}{4}$ of a full rotation.

4. Which angle is measured 125° ?
   A.





   B.

   C.



   D.

5. The fraction which represents the colored part equals ....



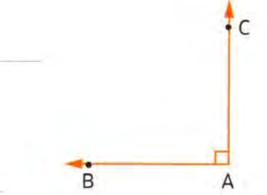
   A. $\frac{1}{3}$ B. $\frac{2}{3}$
   C. $\frac{1}{4}$ D. $\frac{5}{6}$

6. .... angle measures between 0° and 90°.
   A. An acute B. A right
   C. An obtuse D. A straight

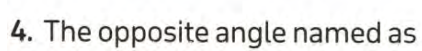
7. The measure of the straight angle is .... °
   A. 90 B. 100 C. 150 D. 180

[2] Complete:

1. The two sides of the opposite angle are ________ and ________



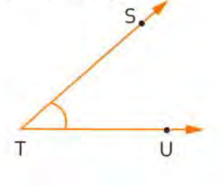
2. An obtuse angle measures between ________ and ________
3. The fraction $\frac{1}{4}$ represents in the circle an angle of measure = ________ °



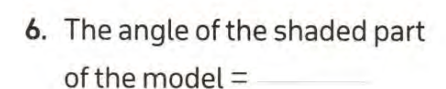
4. The opposite angle named as



________ , ________ and ________



5. The measure of the opposite angle = ________



6. The angle of the shaded part of the model = ________



7. A right angle measured ________ °.
8. There are ________ degrees in a circle.

[3] Choose the correct answer:

1. The measure of the colored angle of the opposite model is ________ °

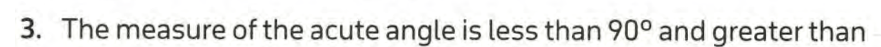


A. 90 B. 120 C. 150 D. 180

2. The opposite angle is named as angle ________

A. ABC B. BCA
C. CAB D. CBA

3. The measure of the acute angle is less than 90° and greater than ________ °

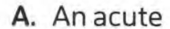


A. zero B. 90 C. 180 D. 360

4. The measure of the opposite angle is ________ °

A. 75 B. 105
C. 55 D. 95

5. ________ angle is $\frac{1}{4}$ of the circle.



A. An acute B. An obtuse C. A right D. A straight

6. The related fraction to the angle of measure 120° is ________

A. $\frac{1}{6}$ B. $\frac{1}{4}$ C. $\frac{1}{3}$ D. $\frac{1}{2}$

7. The straight angle is the same as ________ right angles.

A. 1 B. 2 C. 3 D. 4



[4] Answer the following:

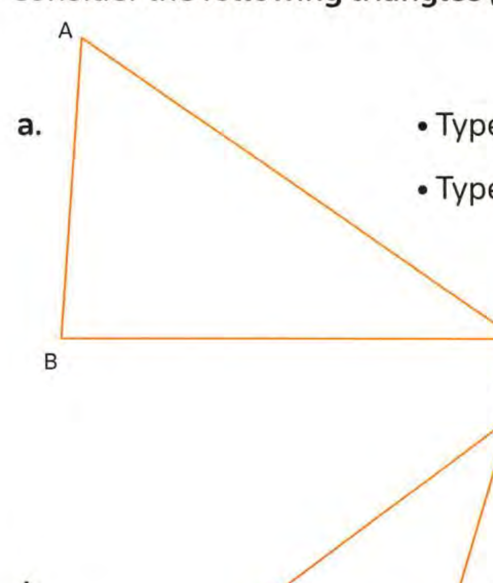
1. Draw ∠ ABC with measure of 120° and classify it by its type.
2. Measure each of the following angles, then classify each angle by its type.

a. 

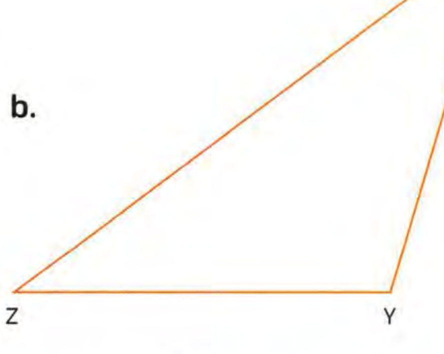
b. 

c. 

3. Consider the following triangles (using your geometric instrument).

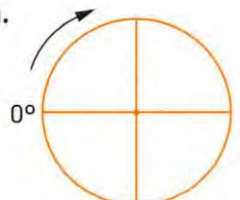
a. 

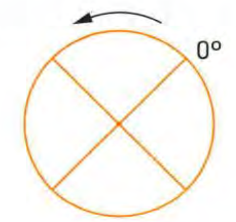
- Type of Δ ABC with respect to its sides ....
- Type of Δ ABC with respect to its angles ....

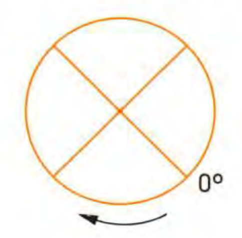
b. 

- Type of Δ XYZ with respect to its sides ....
- Type of Δ XYZ with respect to its angles ....

4. Move from 0° in the given direction. Then label 90° , 180° , 270° and 360° on each circle.

a. 

b. 

c. 



BEST WISHES



